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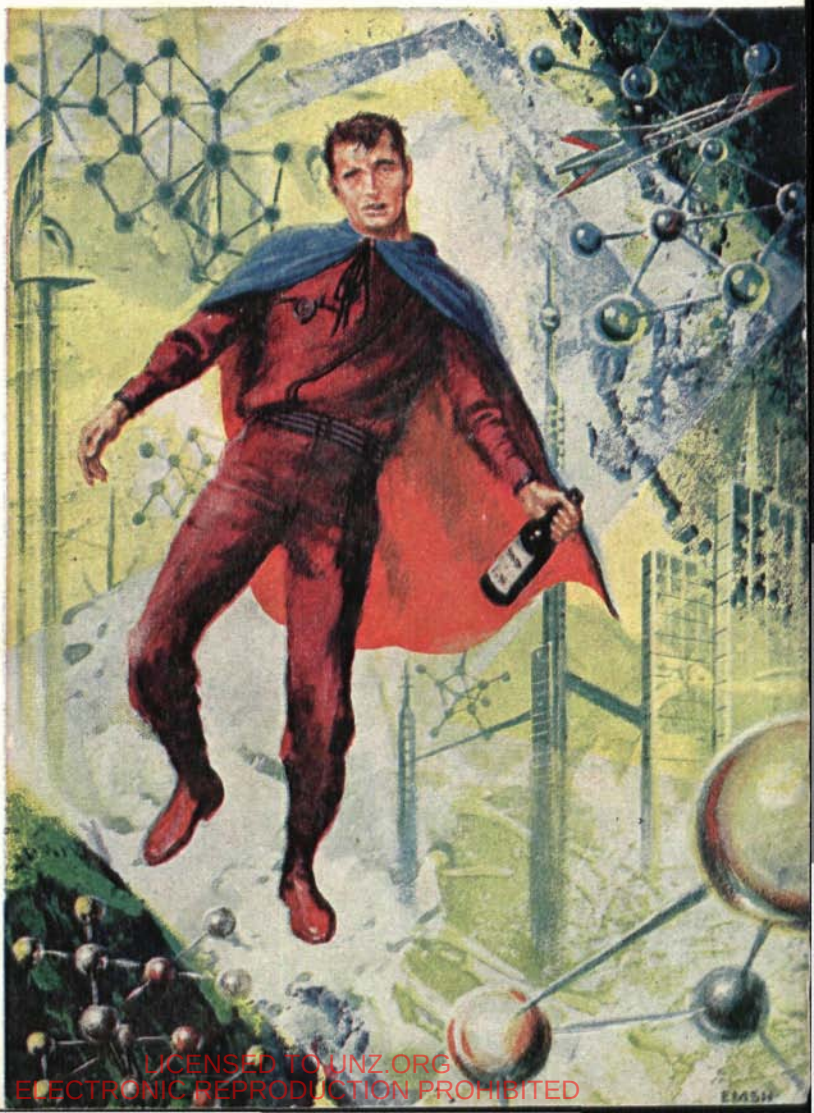

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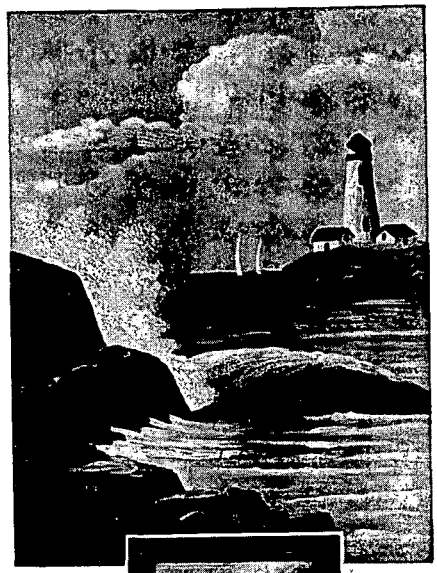

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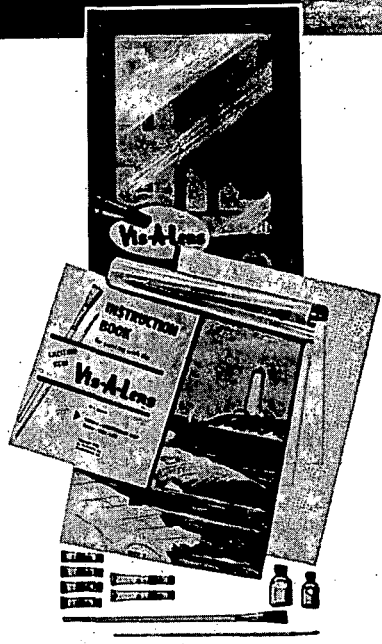

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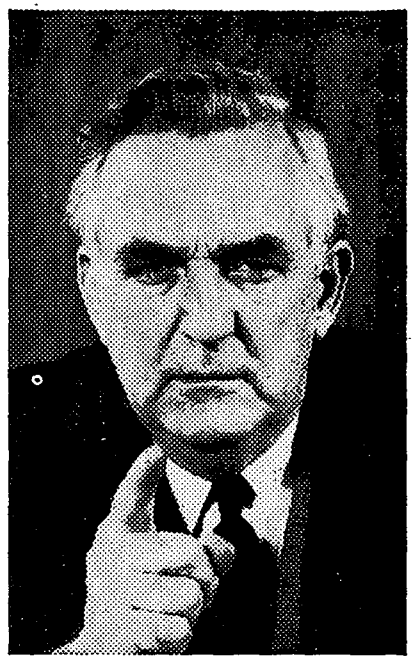

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WHAT ARE ALIENS MADE OF?

ONE of the most resourceful men on this planet is Lester Green of Prospect, Conn. Word for word, here are some of his truly incredible achievements that literally made news:

One fall Lester flooded a meadow to insure a good ice crop for the summer. While cutting ice during February he found a setting of hen's eggs in a block of ice. These he placed in a pan on top of his furnace to thaw out. A few days later he found eight Leghorn chicks in the pan, each covered with what resembled fur instead of feathers.

When Lester's chimney caught fire he went to the roof and threw sand down it. His wife, excited, mistook washing soda for salt and filled the stove with it. The fire fused the two materials and filled the stovepipe and chimney solidly with glass.

Hearing of Thomas A. Edison's experiment to extract rubber from goldenrod, Lester invented a system for producing dairy products from milkweed. He attached Mrs. Green's vibrating machine and churned the juice of the plants so that the leaves exuded butter.

Finding a snapping turtle that had been scared out of its shell, Lester made another for it out of concrete into which the turtle crawled and rewarded its benefactor by keeping his feed house free of rats and mice.

To assure a winter crop of fresh apples Lester sprayed his trees with glue which prevented the fruit's dropping off in the fall. During the winter a fresh apple always was available merely by washing off the glue.

While butchering a hog Lester discovered the fluid responsible for the curl in a pig's tail. By rubbing it on their hair Mrs. Green and her daughter produced beautiful permanent waves.

Great as Lester Green is, C. Louis Mortison of the Waterbury *Republican* and *American* is greater, for Green is Mortison's invention, and the exploits quoted are among the many in *Hoaxes* by Curtis D. MacDougall, published by Dover Publications, 920 Bway., N.Y. 10, @ $1.75. (Address and price are given to duck mail.)

"Ridiculous as some of these stories may appear," MacDougall continues, "the following results are on record:

"A Canadian farmer tried to

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buy a pair of the fur-coated chickens. Mortison answered that they had sweltered to death in the warm weather.

"Two prominent chemical engineers tried to find the Green home to investigate the chimney filled with glass.

"American and Canadian glue manufacturing concerns sent letters addressed to Lester Green asking what kind of glue he used for his apples, and a representative of a Boston concern came to Prospect to investigate.

"Mrs. Green was inundated with requests for the exact method of extracting the pigtail fluid."

MacDougall's worthy purpose is to expose hoaxes — and hoaxes should indeed be exposed, especially vicious ones.

But it is no disrespect to his purpose to say that the charm of *Hoaxes* is the array of engaging whoppers constructed for the sheer love of invention, not only meant to hurt nobody but to enrich their lives, as indeed they do.

For MacDougall, in attributing the success of hoaxes to everything from indifference to prejudice and ignorance, does not attribute enough to their inventors' ability to sweat illogic into the shape — if not the substance — of logic.

This is deadly, of course, in evil causes. For instance, the Nazi claim that Jews have a far higher incidence of insanity than any other religious group is true. But it happens to coincide with the urban rate, which is the only one that should be applied. Ukases forbidding Jews to own land forced them into the cities, making them an urban people — and therefore subject to the same stresses as all other city folk. As to the oft-made charge that they prefer city life, the Bible says otherwise, and the phenomenal modern agricultural production of Israel confirms the Bible's testimony.

Very far from evil in such intent or effect are Mortison's hoaxes. And that a faker can be a hero, commemorated as one, you can see for yourself outside Winsted, Conn., where the welcoming signs read:

Winsted, founded in 1799, has been put on the map by the ingenious and queer stories that emanate from this town and which are printed all over the country, thanks to L. T. Stone.

Unfortunately, Louis T. Stone, the "Winsted Liar," is not living proof. He died in 1933, managing editor of the *Evening Citizen*, whose building also marks his memory with a plaque, and a bridge named after him has been built over — what else? — Sucker Brook.

Beginning his journalistic tall-tale career in 1895, Stone brilliant-

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ly manufactured circumstances that made the following dazzlers seem entirely reasonable:

A tree on which baked apples grew.

A farmer who plucked his chickens for market with a vacuum cleaner.

A rooster that stopped a train. (MacDougall doesn't say, but my recollection of latter-day versions — hoaxes neither die nor fade away—was that the rooster stopped the train to save a life.)

A deaf and dumb pig.

A three-legged bullfrog.

A hen that laid a red-white-and-blue egg on the Fourth of July.

A Plymouth hen that hopped off a railroad engine's cowcatcher when "Plymouth" was called, and left an egg "to pay for her ride."

A cat with a harelip that whistled "Yankee Doodle."

A modest cow owned by two old maids that refused to let any man milk her.

Three tunneling trout that burrowed their way underground from Highland Lake to Mr. Stone's brook and received their New Year's Day meal annually from Mr. Stone's hand.

A man who painted a spider on his bald head to keep the flies away.

A watch in the stomach of a cow that lost only two hours over a period of years because the breath of the animal acted as an automatic winder.

Hoaxes deserves to be read for its relentless tracking down of frauds in art, history, literature, science, politics and journalism.

But there is a wonderfulness in the harmless exuberant imaginations — the purely entertaining variety — that science fiction could use more of, not just now but at any time in the past or future. This, in other words, is one thing there can't be too much of.

Writers willing to settle for tentacled aliens might instead be inspired by the whirling whimpus, which spins so fast that nobody knows what one looks like; the rubberado, which bounces when shot, and anyone who eats it bounces, too; the tripodero, which has extensible legs and stuns its enemies with clay pellets shot from its blowgun proboscis; the rackabore — adapted to living on hills, it has two legs, either left or right, shorter than the other two — but may be overspecialized because neither the left- nor right-legged type can turn in the opposite direction.

These and the wonders of the ancients were invented with such minuteness of detail to amaze the folks back home. Until the stars are explored, we all are the folks back home, and we love being amazed by cleverly fashioned aliens. Tentacles?

Bah, humbug!

— H. L. GOLD

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DRUNKARD'S

A taut, brilliant new novel by the author of Gravy Planet, Slave Ship and other great Galaxy serials!

FIRST OF TWO PARTS

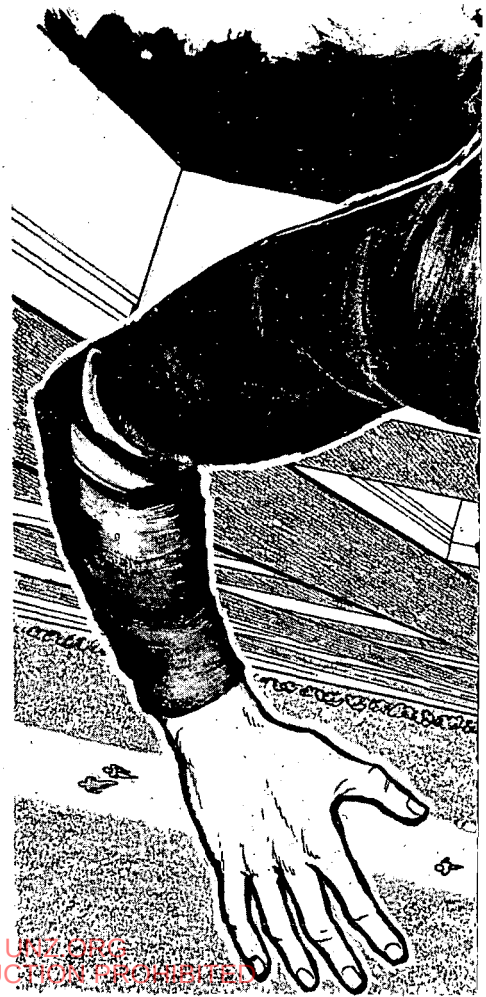
I

THIS man's name is Cornut, born in the year 2166 and now thirty. He is a teacher. Mathematics is his discipline. Number theory is his specialty. What he instructs is the mnemonics of number, a study which absorbs all his creative thought. But he also thinks about girls a lot.

He is unmarried. He sleeps alone and that is not so good.

If you wander around his small bedroom (it has lilac walls and a cream ceiling; those are the Math Tower colors), you will hear a whispering and a faint whirring sound. These are not the sounds of Cornut's breath, although he is sleeping peacefully. The whispering is a hardly audible *wheep, wheep* from an electric clock. (It was knocked to the floor once. A gear is slightly off axis; it rubs against a rivet.) The whir is another clock. If you look more carefully, you will find that there are more clocks.

There are five clocks in this



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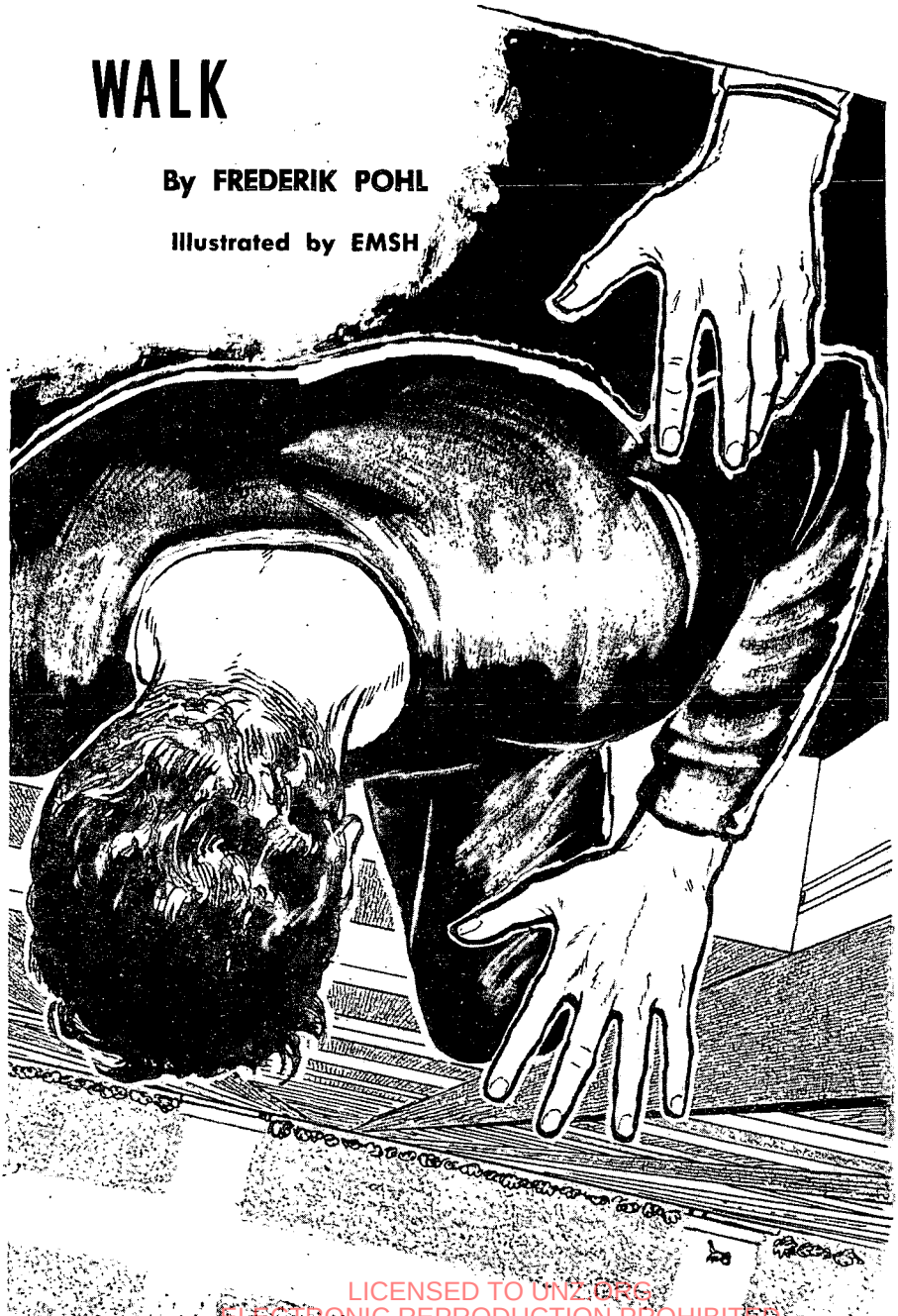
WALK

By FREDERIK POHL

Illustrated by EMSH



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room, all told. They all have alarms, set to ring at the same moment.

Cornut is a good-looking man, even if he is a little pale. If you are a woman (say, one of the girls in his classes), you would like to get him out in the sun. You would like to fatten him up and make him laugh more. He is not aware that he needs sunshine or fattening, but he is very much aware that he needs something.

He knows something is wrong. He has known this for seven weeks, on the best evidence of all.

The five clocks march briskly toward seven-fifteen, the time at which they are set to go off. Cornut has spent a lot of time arranging it so that they will sound at the same moment. He set the alarm dial on each, checked it by revolving the hands of the clocks themselves to make note of the exact second at which the trigger went off, painfully reset and rechecked. They are now guaranteed to ring, clang or buzz within a quarter-minute of each other.

However, one of them has a bad habit. It is the one that Cornut dropped once. It makes a faint click a few moments before the alarm itself rings.

It clicks now.

The sound is not very loud, but Cornut stirs. His eyes flicker. They close again, but he is not quite asleep.

After a moment he pushes back the covers and sits up. His eyes are still almost closed.

Suppose you are a picture on his wall — perhaps the portrait of Leibnitz, taken from Ficquet's old engraving. Out of the eyes under your great curled wig, you see this young man stand up and walk slowly toward his window.

His room is eighteen stories up.

If a picture on the wall can remember, you remember that this is not the first time. If a picture on the wall can know things, you know that he has tried to leap out of that window before, and he is about to try again.

He is trying to kill himself. He has tried nine times in the past fifty days.

If a picture on a wall can regret, you regret this. It is a terrible waste for this man to keep trying to kill himself, for he does not at all want to die.

II

CORNUT was uncomfortable in his sleep. He felt drowsily that he had worked himself into an awkward position, and besides, someone was calling his name. He mumbled, grimaced, opened his eyes.

He was looking straight down, nearly two hundred feet.

At once he was fully awake. He teetered dangerously, but someone

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behind him had caught him by an arm, someone shouting. Whoever it was, he pulled Cornut roughly back into the room.

At that moment the five alarm clocks burst into sound, like a well-drilled chorus; a beat later the phone by his bed rang; the room lights sprang into life, controlled by their automatic timer, one reading lamp turned and fitted with a new, brighter tube so that it became a spotlight aimed at the pillow where Cornut's head should have been.

"Are you all right?"

The question had been repeated several times, Cornut realized. He said furiously, "Of course I'm all right!" It had been very close; his veins were suddenly full of adrenalin, and as there was nothing else for it to do, it charged him with anger . . . "I'm sorry. Thanks, Egerd."

The undergraduate let go. He was nineteen years old, with crew-cut red hair and a face, normally deeply tanned, that was now almost white. "That's all right." He cautiously backed to the ringing phone, still watching the professor. "Hello. Yes, he's awake now. Thanks for calling."

"Almost too late," said Cornut, "alarms, lights, phone, you . . ."

"I'd better get back, sir. I'll have to — oh, good morning, Master Carl."

The house master was standing in the doorway, a gaggle of undergraduates clustered behind him like young geese, staring in to see what all the commotion was. Master Carl was tall, black-haired, with eyes like star sapphires. He stood holding a wet photographic negative that dripped gently onto the rubber tiles. "What the devil is going on here?" he demanded.

Cornut opened his mouth to answer, and then realized how utterly impossible it was for him to answer that question. He didn't know! The terrible thing about the last fifty days was just that. He didn't know what; he didn't know why; all he knew was that this was the ninth time he had very nearly taken his own life.

"Answer Master Carl, Egerd," he said.

THE undergraduate jumped. Carl was the central figure in his life; every student's hope of passing, of graduating, of avoiding the military draft or forced labor in the Assigned Camps lay in his house master's whim.

Egerd said, stammering, "Sir, I — I have been on extra duty for Master Cornut. He asked me to come in each morning five minutes before wake-up time and observe him, because he — That is, that's what he asked me to do. This morning I was a little late."

Carl said coldly, "You were late?"

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"Yes, sir. I — "

"And you came into the corridor without *shaving*?"

The undergraduate was struck dumb. The cluster of students behind Carl briskly dissolved. Egerd started to speak, but Cornut cut in. He sat down shakily on the edge of his bed. "Leave the boy alone, will you, Carl? If he had taken time to shave, I'd be dead."

Master Carl rapped out, "Very well. You may go to your room, Egerd. Cornut, I want to know what this is all about. I intend to get a full explanation . . ." He paused, as though remembering something. He glanced down at the wet negative in his hand.

"As soon as we've had breakfast," he said grimly, and stalked back to his own rooms.

Cornut dressed heavily and began to shave. He had aged a full year every day of the past seven weeks; on that basis, he calculated, he was already pushing eighty, a full decade older than Master Carl himself. Seven weeks, and nine attempts at suicide.

And no explanation.

He didn't look like a man who had just sleepwalked himself to the narrow edge of suicide. He was young for a professor and built like an athlete, which was according to the facts; he had been captain of the fencing team as an undergraduate, and was its faculty advisor still. His face looked like the face of a husky, healthy youth who for some reason had been cutting himself short on sleep, and that was also according to the facts. His expression was that of a man deeply embarrassed by some incredibly inexcusable act he has just committed. And that fit the facts too.

Cornut *was* embarrassed. His foolishness would be all over the campus by now; undoubtedly there had been whispers before, but this morning's episode had had many witnesses and the whispers would be quite loud. As the campus was Cornut's whole life, that meant that every living human being whose opinion counted with him at all would soon be aware that he was recklessly trying to commit suicide — for no reason — *and not even succeeding*!

HE dried his face and got ready to leave his room — which meant facing everybody, but there was no way out of that.

A bundle of letters and memoranda was in the mail hopper by his desk. He paused to look at them: nothing important.

He glanced at his notes, which someone had been straightening. Probably Egerd. Cornut's scrawled figures on the Wolgren anomaly were neatly stacked on top of the *schema* for this morning's lectures. In the center of the desk, with a paperweight on top of it, was the red-bordered letter from the presi-

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dent's office, inviting him to go on the Field Expedition.

He reminded himself to ask Carl to get him off that. He had too much to do to waste time on purely social trips. The Wolgren study alone would keep him busy for weeks, and Carl was always pressing him to publish. But trying to get off the Field Expedition was premature. Three months from now . . . maybe . . . if Computer Section allocated enough time, and if the anomalies didn't disappear in someone's long-past error in simple addition.

And if he was still alive, of course.

"Oh, damn it all, anyhow!" Cornut said. He tucked the president's letter into his pocket, picked up his cape and walked out irritably.

The Math Tower dining room served all thirty-one masters of the Department, and most of them were there before him. He walked in with an impassive face, expecting a sudden hush to stop the permanent buzz of conversation in the hall. It did. Everyone was looking at him.

"Good morning," he said cheerfully.

One of the few women on the staff waved to him, giggling. "Good for you, Cornut! Come sit with us, will you? Janet has an idea to help you stop suiciding!"

Cornut smiled and turned his back on the two women. They slept in the women's wing, of course, twelve stories below his own dorms, but already the word had spread. Naturally.

He stopped at the table where Master Carl sat alone, drinking tea and looking through a sheaf of photographs. "I'm sorry about this morning, Carl," he said.

Master Carl looked vaguely up at him. With his equals, Carl's eyes were not the star sapphires that had pierced Egerd; they were the mild, blue eyes of a lean Santa Claus, which was much closer to his true nature. "Oh? Oh. You mean about jumping out of the window. Sit down." He made a space on the table for the student waitress to put down Cornut's place-setting. The whole cloth was covered with photographic prints. He handed one to Cornut. "Tell me," he said apologetically, "does that look like a picture of a star to you?"

"No." Cornut was not very interested in his department head's hobbies. The print looked like a light-struck blob of nothing much at all.

Carl sighed and put it down. "All right. Now, what about this thing this morning?"

Cornut accepted a cup of coffee from one of the student waitresses and waved away the others. "I wish I could," he said seriously.

Carl waited.

"I mean — it's hard," said Cornut.

Carl waited.

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CORNUT took a long swallow of coffee and put down his cup. Carl was probably the only man on the faculty who hadn't been listening to the grapevine. It was almost impossible to say to him the simple fact of what had happened. Master Carl was a child of the University, just as Cornut himself was; like Cornut, he had been born in the University's medical center and educated in the University's schools. He had no taste for the boiling, bustling Townie world outside. In fact, he had very little taste for human problems at all. Lord knew what Carl, dry as digits, his head crammed with Vinogradoff and Frénicle de Bessy, would make of so non-mathematical a phenomenon as suicide.

"I've tried to kill myself nine times," Cornut said, plunging in. "Don't ask me why; I don't know. That's what this morning was all about. It was my ninth try."

Master Carl's expression was exactly what Cornut had anticipated.

"Don't look so incredulous!" Cornut snapped. "*I* don't know any more about it than that. It's at least as much of an annoyance to me as it is to you!"

The house master looked helplessly at the photographic prints by his plate, as though some answer might be there. It wasn't. "All right," he said, rubbing the lobes of bone over his eyes. "I understand your statement. Has it occurred to you that you might get help?"

"*Help?* My God, I've got helpers all over the place! The thing is worst in the morning, you see; just when I'm waking up, not fully alert, that's the bad time. So I've set up a whole complicated system of alarms. I have five clocks set; I got the superintendent's office to rig up the lights on a timed switch; I got the night proctor to call me on the house phone — all of them together, so that when I wake up, I wake up *totally*. It worked for three mornings, and, believe me, the only thing that the experience resembles is being awakened by a pot of ice water in the face. I even got Egerd to come in every morning to stand by while I woke, just on the chance that something might go wrong."

"But this morning Egerd was late?"

"He was tardy," Cornut corrected. "A minute or two more and he would have been late, all right. And so would I."

Carl said, "That's not exactly the sort of help I had in mind."

"You mean the Med Center?" Cornut reached for a cigarette. A student waitress hurried over with a light. She was in one of his classes; a girl named Locille. She was pretty and very young. Cornut said absently, following her with his eyes, "I've been there, Carl. They offered me analysis. In fact, they were quite insistent."

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MASTER Carl's face was luminous with interest. Cornut, turning back to look at him, thought that he hadn't seen Carl quite so absorbed in anything since their last discussion about the paper Cornut was doing for him: the analysis of the discrepancies in Wolgren's basic statistical law.

Carl said, "I'll tell you what astonishes me. You don't seem very worried about all this."

Cornut reflected. ". . . I am, though."

"You don't show it. Well, is there anything else that's worrying you?"

"Worried enough to kill myself? No. But I suppose there must be, mustn't there? The evidence speaks for itself."

Carl stared into the empty air. The eyes were bright blue again; Master Carl was operating with his brain, examining possibilities, considering their relevancy, evolving a theory. "Only in the mornings?"

"Oh, no, Carl. I'm much more versatile than that! I can try to kill myself at any hour of the day or night. But it happens when I'm drowsy. Going to sleep, waking up — once, in the middle of the night, I found myself walking toward the fire stairs, God knows why. Perhaps something happened to half-wake me, I don't know. So I have Egerd keep me company at night until I'm thoroughly asleep, and again in the morning. He's my — baby-sitter."

Carl said testily, "Surely you can tell me more than this!"

"Well . . . Yes, I suppose I can. I think I have dreams."

"Dreams?"

"I think so, Carl. I don't remember very well, but it's as though someone were *telling* me to do these things, someone in a position of authority. A father? I don't remember my own father, but that's the feeling I get."

The light went out of Carl's face. He had lost interest.

Cornut said curiously, "What's the matter?"

The house master leaned back, shaking his head. "No, it's fallacious to believe someone is telling you, Cornut. There isn't anyone. I've checked the matter of dreams very thoroughly. Dreams come from the dreamer."

"But I only said — "

Master Carl held up his hand. "To consider any other possibility," he lectured, in the voice that reached three million viewers every week, "involves one of two possibilities. First, there might be a physical explanation. That is, someone may actually be speaking to you as you sleep. That isn't very likely, now is it? The second possibility is telepathy. And that," he said sadly, "does not exist."

"But I only — "

"Look within yourself, my boy," the old man said wisely. Then, his expression showing interest again,

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"And what about Wolgren? Any progress with the anomalies?"

FIFTEEN minutes later, on the plea that he was late for an appointment, Cornut made his escape. There were twelve tables in the room and he was invited to sit down at eight of them for a second cup of coffee . . . and, oh yes, what *is* this story all about, Cornut?

His appointment, although he hadn't said so to Master Carl, was with his analyst. Cornut was anxious to keep it.

He wasn't very confident of analysis as a solution to his problem. Despite three centuries, the techniques of mental health had never evolved a rigorous proof system, and Cornut was skeptical of whatever was not susceptible of mathematical analysis. But there was something else he had neglected to tell Master Carl.

Cornut was not the only one of his kind.

The man at the Med Center had been quite excited. He named five names that Cornut recognized, faculty members who had died in ambiguous circumstances within the past few years. One had made fifteen attempts before he finally succeeded in blowing himself up after an all-night polymerization experiment in the Chem Hall. A couple had succeeded on the first or second try.

What made Cornut exceptional was that he had got through seven weeks of this without even seriously maiming himself. The all-time record was ten weeks. That was the chemist.

The analyst had promised to have all the information about the other suiciders to show him this morning. Cornut could not deny that he wanted to see the data. Indeed, it was a matter of considerable concern.

Unless all precedent was wrong, he would succeed as all the others had ultimately succeeded. He would kill himself one way or another, and it was unlikely that he ever would know why he had done it.

And unless precedent was wrong again, it would happen within the next three weeks.

III

THE University was beginning its day. In the Regents Office, a clerk filled a hopper and flipped a switch, and Sticky Dick — sometimes written as S. T.-I (C.E.), Di. C. — began to grind out grades on the previous day's examinations in English, Sanskrit and the nuclear reactions of the Bethe Phoenix cycle. Student orderlies in Med School wheeled their sectioned cadavers out of the refrigerated filing drawers, playing the time-honored ribald jokes with the detached parts. In the central Tape

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Room, the TV technicians went about their endless arcane ritual of testing circuits and balancing voltages; every lecture was put on tape as a matter of course, even those which were not either broadcast or syndicated.

Thirty thousand undergraduates ran hastily over the probable mood of their various instructors, and came to the conclusion that they would be lucky to live through to evening. But it was better than trying to get along in the outside world, the Townie world.

And in the kitchen attached to the faculty dining room of Math Tower, the student waitress, Locille, helped a Culinary Engineer mop the last drops off the stainless steel cooking utensils. She hung up her apron, checked her makeup in the mirror by the door, descended in the service elevator and went out to the hot, loud walks of the Quad.

Locille didn't think them either hot or loud. She had known much worse.

Locille was a scholarship girl; her parents were Town, not Gown. She had been at the University for only two years. She still spent some of her weekends at home. She knew very clearly what it was like to live in the city across the bay — or, worse, to live on one of the texases off the coast — with your whole life a rattling, banging clamor day and night and everyone piled up against everyone else. The noise in the Quadrangle was human noise and the ground did not shake.

Locille had a happy small face, short hair, a forthright way of walking out. She did not look worried, but she was. He had looked so *tired* this morning! Also he wasn't eating, and that was not like him. If it wasn't scrambled eggs and bacon, it was a hot cereal with fruit on top, always. Perhaps, she planned, smiling at a boy who greeted her without really seeing his face at all, tomorrow she would just bring the scrambled eggs and put them in front of him. Probably he'd eat them.

Of course, that wasn't getting at the real problem.

Locille shivered. She felt helpless. It was distressing to care so much what happened to someone, and be so far outside the situation itself...

RUNNING footsteps came up behind her and slowed. "Hi," panted her most regular date, Egerd, falling into step. "Why didn't you wait at the door? What about Saturday night?"

"I don't know yet. They might need me at the faculty dance."

Egerd said brusquely, "Tell them you can't make it. You have to go out to the texas. Your brother has, uh, some disease or other, and your mother needs you."

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Locille laughed.

"Aw, look. I've got Carnegan's boat for the evening! We can go clear down to the Hook."

Locille willingly let him take her hand. She liked Egerd. He was a good-looking boy and he was kind. He reminded her of her brother . . . well, not of her real brother, but the brother she should have had. She liked Egerd. But she didn't *like* him. The distinction was quite clear in her mind. Egerd, for example, obviously *liked* her.

Egerd said, "Well, you don't have to make up your mind now. I'll ask you again tomorrow." That was a salesman's instinct operating; it was always better to leave the prospect with a "maybe" than a "no."

He guided her between two tall buildings toward the back gardens of the campus, where Agronomy had made a little Japanese retreat in the middle of fifteen intensively farmed acres of experimental peas and wheat.

"I think I got some demerits from old Carl this morning," he said gloomily.

"Too bad," Locille said, although that was not an unusual phenomenon. But then he caught her attention.

"I was just trying to do Cornut a favor. *Trying?* Hell, I saved his life!" She was all attention now. "He was practically out the window. Loopy! You know, I think half of these professors are off their rockets. Anyway, if I hadn't got there when I did, he would've been dead. *Splop.* All over the Quad. At that," he said cheerfully, "I was kind of late."

"Egerd!"

He stopped and looked at her. "What's the matter?"

"You shouldn't have been late! Didn't you know Master Cornut was *relying* on you? *Really!* That was *awful* of you!"

She was actually angry. Egerd studied her thoughtfully and stopped talking; some of the pleasure had gone out of the morning for him. Abruptly he caught her arm.

"Locille," he said in a completely serious tone, "please marry me for a while. I know I'm here on a scholarship and my grades are marginal. But I won't go back. Listen, I'm not going to stay with Math. I was talking to some of the fellows at Med School. There's a lot of jobs in epidemiology, and that way my Math credits will do me some good. I'm not asking for ten years of your life. We can make it month to month, even, and if you don't opt for a renewal, I swear I won't hold it against you. But let me try to make you want to stay with me, Locille. Please. Marry me."

He stood looking down at her, his broad, tanned face entirely open, waiting. She didn't meet his eye.

After a moment he nodded com-

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posedly. "I can't compete with Master Cornut, can I?"

She suddenly frowned. "Egerd, I hope you won't feel — I mean, just because you've got the idea I'm interested in Master Cornut, I hope—"

"No," he said, grinning, "I won't let him dive out a window. But you know something? You're a very pretty girl, Locille, but I don't think Cornut knows you're alive."

THE analyst followed Cornut to the door. He was frustrated and not concealing his frustration.

Cornut said stiffly, "Sorry, but I *won't* put everything else aside."

"You'll have to, if you succeed in killing yourself."

"That's what you're supposed to prevent, isn't it? Or is this whole thing a complete waste of time?"

"It's better than suicide."

Cornut shrugged. It was a logically impeccable point.

"Won't you even stay overnight? Observation might give us the answer."

"No."

The analyst hesitated, shook his head, shook hands. "All right. I guess you know that if I had my way, I wouldn't be asking you. I'd commit you to Med Center."

"Of course you would," Cornut said. "But you don't have your way, do you? You've tried to get an order from the president's office already, haven't you?"

The analyst had the grace to look embarrassed. "Front office interference. You'd think they'd understand that Mental Health needs a *little* cooperation once in a while . . ."

Cornut left him still muttering. As he stepped out onto the Quad, the heat and noise struck him. He didn't mind, either; he was used to it.

He had recovered enough to think of the morning's escape with amusement. The feeling was wry, with a taste of worry to it, but he was able to see the funny side. And it was ridiculous, no doubt about it. Suicide! Miserable people committed suicide, not happy ones, and Cornut was a perfectly happy man.

Even the analyst had as much as admitted that. It had been a total waste of time, making Cornut dig and dig into his cloudy childhood recollections for some early, abscessed wound of the mind that was pouring poisons out of its secret hiding place. He didn't have any! How could he? He was Gown. His parents had been on the faculty of this very University. Before he could walk, he was given over to the creches and the playschools, run by the best-trained experts in the world, organized according to the best principles of child guidance. Trauma? There simply could not be any!

Not only was it impossible on the face of it, but Cornut's whole

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personality showed no sign of such a thing. He enjoyed his work very much, and although he knew there was something he lacked — a secure love — he also knew that in time he would have it.

"Good morning, good morning," he said civilly to the knots of undergraduates on the walks. He began to whistle one of Carl's mnemonic songs. The undergraduates who nodded to him smiled. Cornut was a highly popular professor.

He passed the Hall of Humanities, the Lit Building, Pre-Med and the Administration Tower. As he got farther from home ground, the number of students who greeted him became smaller, but they still nodded politely to the Master's cloak. Overhead, the shriek of distant passing aircraft filled the sky.

The great steel sweep of the Bay Bridge was behind him now, but he could still hear the unending rush of cars across it and, farther and louder, the growl of the city.

Cornut paused at the door of the studio where he was to deliver his first lecture.

He glanced across the narrow strait at the city. There was a mystery.

It was, he thought, a problem greater than the silent murderer in his own brain. But it was not a problem he would ever have to solve.

"A GOOD teacher is a good makeup man." That was one of Master Carl's maxims. Cornut sat down at the long table and methodically applied a daub of neutral-colored base to each cheekbone. The camera crew began sighting in on him as he worked the cream into his skin, down from the bone and away.

"Need any help?"

Cornut looked up and saw his producer. "No, thanks." He brought the corners of his eyebrows down a fraction of an inch.

The clock was clicking off half-seconds. Cornut penciled in age-lines (that was the price you paid for being a full professor at thirty) and then brushed on the lip color. He leaned forward to examine himself more closely in the mirror, but the producer stopped him. "Just a minute! Dammit, man, not so much red!"

The cameraman turned a dial. In the monitor, Cornut's image appeared a touch paler, a touch greener.

"That's better. All done, Professor?"

Cornut wiped his fingers on a tissue and set the golden wig on his head. "All done," he said, rising just as the minute hand touched the hour of ten.

From a grille at the top of the screen that dominated the front of the studio came the sounds of his theme music, muted for the

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studio audience. Cornut took his place in front of the class, bowed, nodded, smiled, and pressed the pedal of the prompter until he found his place.

He had more than a hundred students physically present. Cornut liked a large flesh-and-blood enrollment — because he was a traditionalist, but even more because he could tell from their faces how well he was getting across. This class was one of his favorites. They responded to his mood, but without ever overdoing. They didn't laugh too loudly when he made a conventional academic joke; they didn't cough or murmur. They never distracted the attention of the huger, wider broadcast audience from himself.

Cornut looked over the class while the announcer was finishing the intro to the broadcast watchers. He saw Egerd, looking upset and irritable about something, whispering to the girl from the faculty dining room. What was her name? Locille. Lucky fellow, Cornut thought absently to himself, and then the Binomial Theorem entered his mind — it was never far away — and displaced everything else.

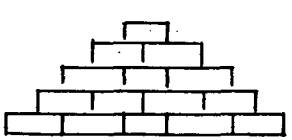
"Good morning," he said, "and let's get to work. Today we're going to take up the relationship of Pascal's Triangle to the Binomial Theorem." A sting of organ music rode in under his words.

Behind him, on the monitor, the symbols $p + q$ appeared in letters of golden fire.

"I presume you all remember what the Binomial Theorem is — unless you've been cutting your classes." Very small laugh—actually a sort of sub-aural grunt, just about what the very small jocular remark deserved. "The expansion of p plus q is, of course, its square, cube, fourth power and so on." Behind him an invisible hand began multiplying $p + q$ by itself in bright gold. "P plus q squared is p-squared plus two pq plus q-squared. P plus q cubed—" The writer in gold noted the sum as he spoke: $p^3 + 3p^2q + 3pq^2 + q^3$.

"That's simple enough, isn't it?" He paused; then, deadpan, "Well, then, how come Sticky Dick says fifteen per cent of you missed it in the last test?" A warmer giggle, punctuated with a couple of loud, embarrassed hee-haws from the back. Oh, they were a very fine class.

THE letters and numbers wiped themselves from the screen and a little red-faced comic cartoon figure of a bricklayer dropped into view and began building a pyramid of bricks:



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"Now, forget about the theorem for a moment. That won't be hard for some of you." Small giggle which he rode over. "Consider Pascal's Triangle. We build it just like a brick wall, only . . . Hold it a minute there, friend." The cartoon bricklayer paused and looked curiously out at the audience. "Only we don't start from the bottom. We build it from the top down." The cartoon bricklayer did a comic pratfall in astonishment. Then, shrugging, he got up, erased the old wall with a sweep of his trowel, hung a brick in space and began building a triangle under it.

"And we don't do it with bricks," added Cornut. "We do it with numbers."

The bricklayer straightened up, kicked the wall off the screen and followed after it, pausing just at the rim of visibility to stick his tongue out at Cornut. The monitor went to a film with live models, cartwheeling into view along the banks of seats of the university's football stadium, each model carrying a placard with a number, arranging themselves in a Pascal Triangle:

```
          1     1
       1     2     1
    1     3     3     1
 1     4     6     4     1
1   5    10    10    5    1
```

Cornut turned to relish the construction Pascal had first written down, centuries before. "You will note," he said, "that each number is the sum of the two terms nearest in the line above it. The Pascal Triangle is more than a pretty pattern. It represents—"

Cornut picked up the ivory-tipped pointer that lay on his desk, clustered with the ceremonial desk furnishings of the instructor — paper cutter, shears, pencils, all there for appearance — and, with the aid of every audio-visual help possible to Man, began explaining to three million viewers the relation between Pascal's Triangle and the binomial distribution.

EVERY line on Cornut's face, every word, every posturing ballet dancer or animated digit that showed itself on the monitor behind him was caught in the tubes of the cameras, converted into high-frequency pulses and hurled out at the world.

Cornut had more than a hundred live watchers — the cream; the chosen ones who were allowed to attend University *in person* — but his viewers altogether numbered three million. In the relay tower at Fort Monmouth, a senior shift engineer named Sam Gensel watched with concentrated attention as across the dimpled tummies of the five girls in the fourth line of the Pascal Triangle electronics superimposed the symbols:

$p^4 + 4p^3q + 6p^2q^2 + 4pq^3 + q^4$

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He was not interested in the astonishing fact that the sign of the five terms in the expansion of $(p + q)^4$ were 1, 4, 6, 4 and 1 — the same as the numbers in the fourth line of the Triangle — but he cared very much that the image was a trifle fuzzy. He twisted a vernier, scowled, turned it back, threw switches that called in an alternate circuit, and was rewarded by a crisper, clearer image. At some relay point, a tube was failing. He picked up the phone to call the maintenance crew.

The crisper, clearer signal was beamed up to the handiest television-relay satellite and showered back down on the world.

On the Sandy Hook texas, a boy named Roger Hoskins, smelling seriously of fish, paused by the door of his room to watch. He did not care about mathematics, but he was a faithful viewer; his sister was in the class, and Mom was always grateful when he could tell her that he'd caught a glimpse of their very fortunate, very seldom encountered daughter.

In a creche over Lower Manhattan, three toddlers munched fibrous crackers and watched; the harried nursery teacher had discovered that the moving colors kept them quiet.

On the twenty-fifth floor of a tenement on Staten Island, a monocar motorman named Frank Moran sat in front of his set while Cornut reviewed Pascal's thesis. Moran did not get much benefit from it. He had just come off the night shift. He was asleep.

There were many of them, the accidental or disinterested dialers-in. But there were more, there were thousands, there were uncounted hundreds of thousands who were following the proceedings with absorption.

For education was something very precious indeed.

The thirty thousand at the University were the lucky ones; they had passed the tests, stiffer every year. Not one out of a thousand passed those tests. It wasn't only a matter of intelligence; it was a matter of having the talents that could make a University education fruitful — in terms of society. For the world had to work. The world was too big to be idle. The land that had fed mere millions of people now had to feed twelve billion.

CORNUT'S television audience could, if it wished, take tests and accumulate credits. That was what Sticky Dick was for; electronically, it graded papers, supplied term averages and awarded diplomas for students no professor ever saw. Almost always the credits led nowhere. But to those trapped in dreary production or drearier caretaker jobs for society, the hope was important.

There was a young man named

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Max Steck, for example, who had already made a small contribution to the theory of normed rings. It was not enough. Sticky Dick said he would not justify a career in mathematics. There were thousands of Max Stecks.

Then there was Charles Bingham. He was a reactor hand at the 14th Street generating plant. Mathematics might help him, in time, become a supervising engineer. It also might not — the candidates for that job were already lined up a hundred deep. But there were half a million Charles Binghams.

Sue-Ann Flood was the daughter of a farmer. Her father drove a helipopper, skimming the plowed fields, seeding, spraying, fertilizing, and he knew that the time she put in on college-level studies would not help her gain admittance to the University. Sue-Ann knew it too. But she was only fourteen years old and she could hope. There were more than two million like Sue-Ann, and every one of them knew that all the others would be disappointed.

Those, the millions of them, were the invisible audience who watched Master Cornut's busy image on a cathode screen. But there were others. One watched from Bogota and one from Buenos Aires. One in Saskatchewan said, "You goofed this morning," and one flying high over the Rockies said, "Can't we try him now?" And one was propped on soft pillows in front of a set not more than a quarter of a mile from Cornut himself; and he said, "It's worth a try. The son of a bitch is getting in my hair."

IT was not the easiest task ever given Man, to explain the relationship between the Pascal Triangle and the binomial distribution, but Cornut was succeeding. Master Carl's little mnemonic jingles helped, and what helped most was the utter joy Cornut took in it all. It was, after all, his life. As he led the class, he felt again the wonder he himself had felt, sitting in a class like this one.

He hardly heard the buzz from the class as he put his pointer down to gesture, and blindly picked it up again, still talking. Teaching mathematics was a kind of hypnosis for him, an intense absorption that had gripped him from the time of his first math class. That was what Sticky Dick had measured, and that was why Cornut was a full professor at his age. It was a wonder that so strange a thing as numbers should exist in the first place, rivaled only by the greater wonder that they should perform so obediently the work of mankind.

The class buzzed and whispered.

It struck Cornut cloudily that they were whispering more than usual.

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He looked up absent-mindedly. There was an itch at the base of his throat. He scratched it with the tip of the pointer, half distracted from the point he was trying to make. But the taped visual aids on the screen were timed just so and he could not falter. He picked up the thread of what he was saying. Itch and buzz faded out of his mind...

Then he faltered again.

Something was wrong. The class was buzzing louder. The students in the first row were staring at him with a unanimous, unprecedented expression. The itch returned compellingly. He scratched at it. It still itched. He dug at it with the pointer.

No. Not with the pointer. Funny, he thought, there was the pointer on his desk.

Suddenly his throat hurt very much.

"Master Cornut, stop!" screamed someone — a girl. Tardily he recognized the voice, Locille's voice, as she leaped to her feet, and half the class with her. His throat was a quick deep pain, like fire. A warm tickling thread slipped across his chest — blood! From his throat!

He stared at the thing in his hand, and it was not the pointer at all but the letter opener, steel and sharp. Confused and panicked, he wheeled to gaze at the monitor. There was his own face, over a throat that bore a slash of blood!

Three million viewers gasped. Half the studio class was boiling toward him, Egerd and the girl ahead of the rest.

"Easy, sir! Here, let me—" That was Egerd, with a tissue, pressing it against the wound. "You'll be all right, sir! It's only—it was close!"

Close? He had all but cut his jugular vein in two, right in front of his class and the watching television world.

The murderer inside his head was getting very strong and sure, to brave the light of day.

IV

CORNUT was a marked man — literally, now. He had a neat white sterile bandage on his throat, and the medics had assured him that when the bandage was gone, there would be a handsome scar. They demanded that he stay around for a complete psychomedical checkup. He said no. They said, "Would you rather be dead?" He said he wasn't going to die. They said, "How can you be sure?" But, as it turned out, the clinic was not going to be free for that sort of thing for a couple of hours, and he fought his way free.

He was furious at the medics for annoying him, at himself for being such a fool, at Egerd for staunching the flow of his blood, at Locille for seeing it. His patience with the world was exhausted.

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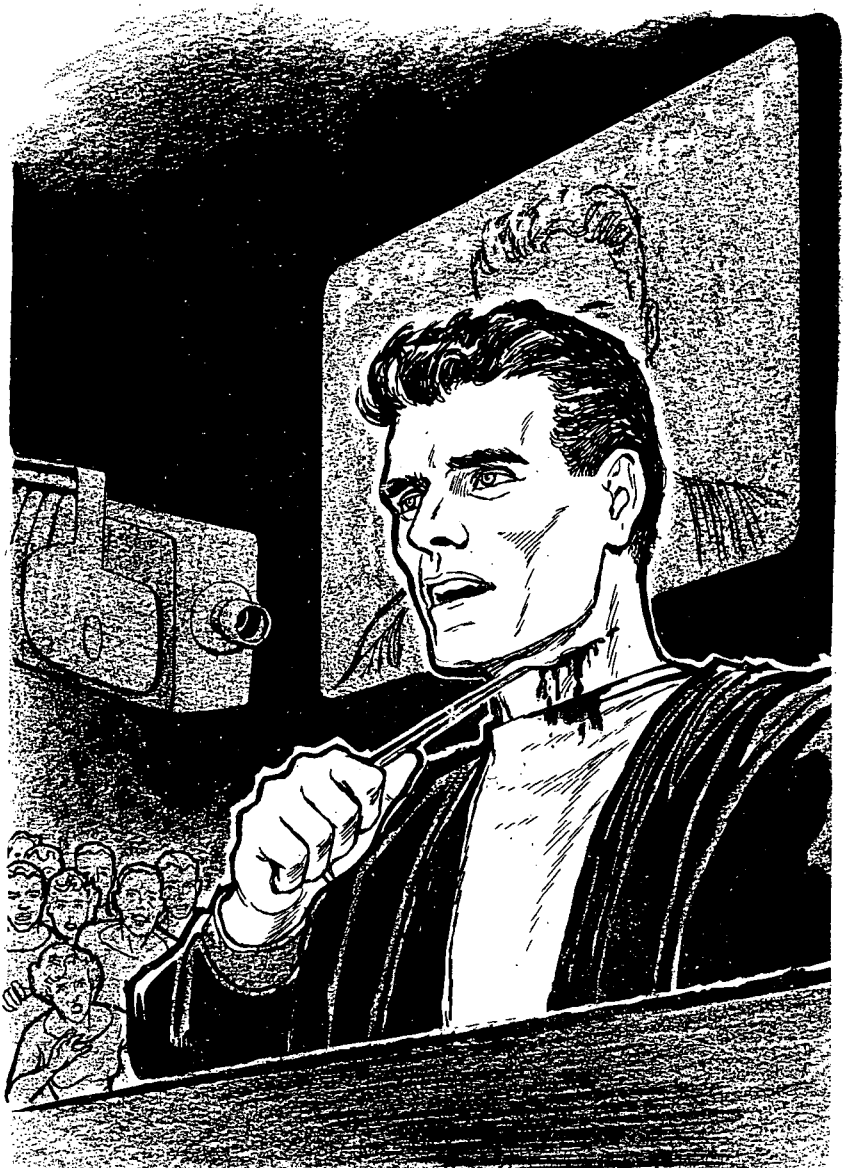

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Cornut strode like a beam-guided aircar to the Math Tower gym, looking neither to left nor right, for he knew what he would see. Eyes. The eyes of everyone on the campus looking at him.

He found an undergraduate who was reasonably willing to mind his own business (the boy only looked slightly doubtful when Cornut chose his epee, but one glimpse of Cornut's face made his own turn into opaque stone), and they fenced for a murderous half-hour. The medics had told Cornut to be sure to rest. Winded and muscles aching, he returned to his room to do so.

He spent a long afternoon lying on his bed and looking at the ceiling, thinking, but nothing came of it. The whole thing was simply too irritating to be borne.

Medics or not, at a quarter of five he put on a clean shirt to keep his appointment at the faculty tea.

The tea was a sort of official send-off to the University's Field Expedition. Attendance was compulsory, especially for those who, like Cornut, were supposed to make the trip; but that was not why he was there. He considered it to be his last good chance to get off the list.

There were three hundred persons in the huge, vaulted room. The University conspicuously consumed space; it was a tradition, like the marginal pencilings in all the books in the library. Every one of the three hundred glanced once quickly at Cornut as he came in, then away — some with a muffled laugh, some with sympathy, the worst with an unnatural lack of any expression at all. So much for the grapevine.

Damn them, Cornut thought bitterly, you'd think no professor ever tried to suicide before.

He couldn't help overhearing some of the whispers:

"And that's at *least* the *seventh* time. It's because he's *desperate* to be Department Head and old Carl *won't* step down."

"Esmeralda! You know you're making that up!"

FACE flaming, Cornut walked briskly past the little knot. It was like a fakir's bed of coals; every step seemed to crisp him. But there were other things being gossiped about at the tea besides him.

"—want us to get along with a fourteen-year-old trevatron. You know what the Chinas have? Six brand-new ones. *And* coin silver for the windings!"

"Yes, but there's six billion of them. Per capita, we stack up pretty—"

Cornut felt minutely better. He halted in the middle of the drinking, eating, talking, surging mass and looked about for Master Carl. He caught sight of him. The department head was paying his re-

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spects to a queer-looking, ancient figure — St. Cyr, the president of the University. Cornut was startled. St. Cyr was an old man and by his appearance a sick one; it was rare to see him at a faculty tea. Still, this one was special — and anyway, that could make it a lot easier to get off the list.

Cornut pushed his way toward them, past a stocky drunk from Humanities who was whispering ribaldly to a patient student waitress, and threaded his way through a group of anatomists from the Med School.

"Notice what decent cadavers we've been getting lately? It hasn't been this good since the last shooting war. Of course, they're not much good except for geriatrics, but that's selective euthanasia for you."

"Will you watch what you're doing with that martini?"

Cornut made his way slowly toward Master Carl and President St. Cyr. The closer he got, the easier it was to move. There were fewer people at St. Cyr's end of the room. He was the central figure of the gathering, but the guests did not cluster around him. That's the kind of a man he was.

THE kind of man St. Cyr was was this: He was the ugliest man in the room.

There were others who were in no way handsome — old, or fat, or sick — but St. Cyr was something special. His face was an artifact of ugliness. Deep old scars made a net across his face like the flimsy cloth that holds a cheese. Surgery? No one knew. He had always had them. And his skin was a cyanotic blue.

Master Greenlease (Phys Chem) and Master Wahl (Anthropology) were there, Wahl because he was too drunk to care whom he spoke to, no doubt; Greenlease because Carl had him by the elbow and would not let him go.

St. Cyr nodded four times at Cornut, like a pendulum. "Nice wea-ther," he said, tolling it like a clock.

"Yes, it is, sir. Excuse me. Master Carl—"

St. Cyr lifted the hand that hung by his side and laid it limply in Cornut's hand — it was his version of a handshake. He opened his seamed mouth and gave the series of unvoiced glottal stops that were his version of a chuckle. "It will be heav-y weath-er for Mast-er Wahl," he said, spacing out the syllables like an articulate metronome. It was his version of a joke.

Cornut gave him a waxen smile and a small waxen laugh. The reference was to the fact that Wahl, too, was scheduled to go on the Field Expedition. Cornut didn't think that was funny — not as far as he himself was concerned, anyway — not when he had so many

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more urgent things on his mind.

"Carl," he said, "excuse me." But Master Carl had other things on his mind; he was badgering Greenlease for information about molecular structure, heaven knew why. And also St. Cyr had not removed his hand.

Cornut grumbled internally and waited. Wahl was giggling over some involved faculty joke to which St. Cyr was listening like a judge. Cornut spared himself the annoyance of listening to it and thought about St. Cyr. Queer old duck. That was where you started. You could acount for some of the queerness by, say, a bad heart. That would be the reason for the blueness. But what would be the reason for not having it operated on?

And then what about the other things? The deadpan expression. The lifeless voice, with its firmly pronounced terminals "ings" and words without a stress syllable anywhere. St. Cyr talked like a clockwork man. Or a deaf one?

But again, what would be the reason for a man allowing himself to be deaf?

Especially a man who owned a University, *including* an 800-bed teaching hospital.

Wahl at last noticed that Cornut was present and punched his shoulder — cordially, Cornut decided, after thought. "Committed any good suicides lately, boy?" He hiccoughed. "Don't blame you. Your fault, President, you know, dragging him off to Tahiti with us. He doesn't *like* Tahiti."

Cornut said, with control, "The Field Expedition isn't going to Tahiti."

Wahl shrugged. "The way us anthropologists look at it, one good island is like another good island." He even made a joke of his specialty! Cornut was appalled.

St. Cyr seemed neither to notice nor to mind. He flopped his hand free of Cornut's and rested it casually on Wahl's weaving shoulder. The other hand held the full highball glass which, Cornut had observed, always remained full. St. Cyr did not drink or smoke (not even tobacco), nor had Cornut ever seen him give a second look to a pretty girl.

"Lis-ten," St. Cyr said in his slow-march voice, turning Wahl to face Carl and the chemist. "This is in-ter-est-ing."

CARL was oblivious of the president, of Cornut, of everything except the fact that the chemist by his side knew something that Carl himself wanted to know. The information was there; he went after it. "I don't seem to make myself clear. What I want to know, Greenlease, is how I can visualize the exact *structure* of a molecule. Do you follow me? For example, what *color* is it?"

The chemist looked uncomfort-

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ably at St. Cyr, but St. Cyr was apparently absorbed. "Well," Greenlease said. "Uh. The concept of color doesn't apply. Light waves are too long."

"Ah! I see!" Carl was fascinated. "Well, what about the shape? I've seen those tinker-toy constructions. The atoms are little balls and they're held together with plastic rods — I suppose they represent connecting force. Are they anything like the real thing?"

"The connecting force is real enough, but you can't see it — or maybe you could, at that." Greenlease, like most of the faculty members present, had had a bit more than enough; he was not of a temper to try to interpret molecular forces in tinker-toy terms for professors who, whatever their status in number theory, were physical-chemical idiots. "Maybe you could, that is, if you could see the atoms in the first place. One is no more impossible than the other. But the connecting force would not look like a rod, any more than the gravitation that holds the Moon to the Earth would look like a rod . . . Let's see . . . Do you know what I mean by the word 'valence'? No. Well, do you know enough atomic theory to know what part is played by the number of electrons in — Or look at it a different way."

Greenlease paused. By his expression, he was getting seriously annoyed, in a way he considered unjust — like an ivory hunter who, carrying a .400 Express in his crooked arm, cannot quite see how to cope with the attack of a hungry mosquito. Greenlease seemed on the point of reviewing atomic structure back through Bohr and well on the way to Democritus.

"I'll tell you what," he said at last. "Stop around tomorrow if you can. I have some plates made under the electron-microscope."

"Oh, thank you!" cried Carl with enthusiasm. "Tomorrow — But tomorrow I'll be off on this con—" He smiled at St. Cyr. "Tomorrow I'll be with the Field Expedition. Well, as soon as I get back, Greenlease. Don't forget." He warmly shook hands and the chemist went quickly away.

Cornut hissed angrily: "That's what I want to talk to you about."

Carl looked startled but pleased. "I didn't know you were interested in my little experiments, Cornut. That was quite fascinating. I've always thought of a molecule of silver nitrate, for example, as being black or silvery. Perhaps that's where my work has gone wrong. Greenlease says—"

"No, I'm not talking about that. I mean the Field Expedition. I *can't* go."

AN observer a yard away would have thought that all of St. Cyr's attention was on Wahl; he had lost interest in the dialogue

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between Carl and Greenlease minutes before. But the old head turned like a parabolic mirror. The faded blue eyes radared in on Cornut. The slow metronome ticked: "You must go, Cor-nut."

"Must go? Of course you must go. Good heavens, Cornut! Don't mind him, President. Certainly he'll go."

"But I have all the Wolgren to get through—"

"And then a su-i-cide to commit." The muscles at the corner of the mouth tried to twitch the blue lips upward, to show that it was a pleasantry.

But Cornut was nettled. "Sir, I don't intend to—"

"You did not intend to this morn-ing."

Carl interrupted. "Cornut, be quiet. President, that was distressing, of course. I've had a full report on it and I believe we can pass it off as an accident. Perhaps it *was* an accident. I don't know. It would have been quite easy to pick up the paper-knife in error."

Cornut said, "But—"

"In an-y case, he must go."

"Naturally, President. You understand that, don't you, Cornut?"

"But—"

"You will take the ad-vance plane, please. I want you to be there when I ar-rive."

"But—" said Cornut, but he could not get a word deeper into that thought; through the mill of faculty came a man and a woman with the tense, nervous bearing of Townies. The woman carried a phototaper; the man was a reporter from one of the nets.

"President St. Cyr? Thanks for inviting us. We'll have a whole crew here when your expedition gets back, but I wonder if we can't get a few photographs now. As I understand it, you've located seven aboriginals. I see. It's a whole tribe, then, but seven are being brought back here. And who is the head of the expedition? Oh, naturally. Millie, will you be sure to get President St. Cyr?"

The reporter's thumb was on the trigger of his voicetaper, getting down the fact that nine faculty members were going to bring back the seven aboriginals, that the expedition would leave, in two planes, at nine o'clock that night, so as to arrive at their destination in early morning, local time; and that the benefits to anthropological research would surely be beyond calculation.

Cornut drew Master Carl aside. "I don't want to go! What the hell does this have to do with mathematics anyhow?"

"Now, please, Cornut. You heard the President. It has nothing to do with mathematics, no, but it is purely a ceremonial function and a good deal of an honor. At the present time, you should not refuse it. You can see that some rumors

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of your, uh, accidents have reached him. Don't cause friction."

"What about the Wolgren? What about my, uh, accidents? Even here I nearly kill myself, and I'm all set up against it. What will I do without Egerd and my system of alarms?"

"I'll be with you."

"No, Carl!"

Carl said, speaking very clearly, "You are going." The eyes were star sapphires.

Cornut studied the eyes for a moment, and then gave up. When Carl got that expression and that tone of voice, it meant that argument served no further useful purpose. Since Cornut loved the old man, he always stopped arguing at that point.

"I'm going," he said. But the expression on his face would have soured wine.

CORNUT packed — it took five minutes — and went back to the clinic to see if diagnostic space was free. It was not. He was cutting his time very close — takeoff for the first plane was in less than an hour — but mulishly he took a seat in the reception room and stolidly he did not look at the clock.

When the examination room was available, things went briskly. His vital statistics were machine-measured and machine-studied, his blood spectrum was machine-chromatographed, automatically the examining table was tipped so that he could step off, and as he dressed, a photoelectric eye behind where garments had hung glanced at him, opened the door to the outside corridor and said, "Thank you. Wait in the outer office, please," from a machine-operated tape.

Master Carl, in a fluster, found him waiting.

"Good heavens, boy! Do you know the plane's about to take off? And the president *especially* said we were to go in the first plane. Come on! I've a scooter waiting!"

"Sorry."

"What the devil do you mean, sorry? Come *on!*"

Cornut said flatly, "I agreed to go. I will go. But, as there is some feeling, shared by yourself, that the medics can help keep me from killing myself, I do not intend to leave this building until they tell me what I must do. I am waiting for the results of my examination now."

Master Carl said, "Oh." He glanced at the clock on the wall. "I see." He sat down beside Cornut thoughtfully, but then suddenly he grinned. "Quite right, boy. The president can't argue with that."

Cornut relaxed. He said, "Well, you go ahead, Carl. No reason for both of us to get in trouble—"

"Trouble?" Cornut realized it had finally occurred to the house master that this trip was a sort of vacation; he was practicing for a

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holiday mood. "Why should there be any trouble? You have a good reason for not being on time. I, too, have a good reason for waiting for you. After all, the president urged me to bring the Wolgren analysis along. He's quite interested, you know. And I did not see it in your room, so I suppose it is in your bags. Therefore I will wait for your bags."

Cornut protested, "But it isn't anywhere near finished!"

Carl actually winked. "Now, do you suppose he'll know the difference? Be flattered that he is interested enough to pretend to look at it!"

"Well, all right. But how the devil did he hear about it in the first place?"

"I told him, of course. I — I've had occasion to discuss you with him a good deal, these past few days." Carl's expression lost some of its glow. "Cornut," he said severely, "we can't let this go on, can we? Your life must be regularized. Take a wife."

"MASTER CARL!" Cornut exploded. "You have no *right* to interfere in my personal affairs!"

"And let you suicide?" the old man said. "This arrangement of alarms and Egerd is only a makeshift. A thirty-day marriage would surely see you through the worst of it, wouldn't it?"

Three weeks, thought Cornut—*that's how long I have — with luck.*

"And, truly, you need a wife. It is bad for a man to go through life alone."

Cornut snapped, "How about you?"

"I'm old. You're young. How long is it since you've had a wife?"

Cornut was obstinately silent.

"You see? There are many lovely young girls in the University. They would be proud. Any of them."

Cornut did not want his mind to roam the corridors that had just been opened for it, but it did.

"Besides, you will have her with you at all the dangerous times. You won't need Egerd."

Cornut's mind ran back quickly and began to trace a more familiar less attractive maze. "I'll think about it," he said at last, just as the medic came in with his report, a couple of boxes of pills and a sheaf of papers. The report was negative, all down the line. The pills? They were just in case — they couldn't hurt; they might help.

And the sheaf of papers . . . The top one said: *Confidential. Tentative. Studies of Suicidal Tendencies in Faculty Members.*

Cornut covered it with his hand, interrupted the medic, who was about to explain the delay in getting the dossiers for him, and cried, "Let's get a move on, Carl! We can still make that plane."

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As fast as the scooter would go, they got to the aircraft park — just in time to see the first section of the Field Expedition lift itself off the ground with a great whistling roar on its VTO jets.

Much to Cornut's surprise, Master Carl was not upset. "Oh, well," he said, "we had our reasons. It isn't as though we were *arbitrarily* late. And anyway—" he allowed himself another wink, the second in a quarter of an hour— "this gives us a chance to ride in the president's private plane, eh? Real living for us underprivileged Gownies!" He even opened his mouth to chuckle, but he didn't do it, or if he did the sound was not heard.

Overhead, there was a gruff giant's cough and a bright spray of flame. They looked up. Flame, flame all over the heavens, falling in great white droplets to the Earth.

"My God!" said Cornut softly. "That was our plane!"

IV

"NOTHING loath," said Master Carl thoughtfully, "I kissed your concubine." He squinted out the window of the jet, savoring the sentence. It was good, yes, but was it perfect?

A towering cumulonimbus, far below, caught his attention and distracted him. He sighed. He didn't feel like working. Apparently everyone else in the jet was asleep. Or pretending to be.

Only St. Cyr, way up front, propped on pneumatic pillows in the semicircular lounge, looked as much awake as he ever did. But it was better not to talk to St. Cyr. Carl was aware that most conversations involving himself turned, sooner or later, to either his private researches or to number theory. As he knew more about either than anyone else alive, they wound up as lectures. That was no good with St. Cyr. He had made it clear long ago that he was not interested in being instructed by the instructors he hired.

Also he was in a bad mood.

It was odd, thought Master Carl, less in resentment than in a spirit of scientific inquiry, but St. Cyr had been quite furious with Cornut and Carl for no good reason. It could not have been for missing the first plane. If they'd caught it, they would have died, just like its crew and the four graduate students it carried. But St. Cyr had been furious, the tick-tock voice hoarse and breathless, the hairless eyebrows almost scowling.

Master Carl took his eyes away from the window and abandoned the question of St. Cyr. Let him sulk. Carl didn't like problems that had no solution. *Nothing loath, I kissed your concubine.* But mightn't it be better to write it as a song?

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He became conscious of a beery breath on the back of his neck.

"I'm glad you're awake, Wahl," he said, turning, his face inches away from the hung-over face of the anthropologist. "Let me have your opinion, please. Which is easier to remember: 'Nothing loath, I kissed your concubine.' Or: 'Last digit? O, a potential square!'"

Wahl shuddered. "A little pity, please. I just this minute woke up."

"Why, I don't think that matters. It might help. The whole idea is to present the mnemonic in a form that is available under any conditions — including," Master Carl said delicately, "a digestive upset."

He rotated his chair to face Wahl, flipping through his notebook to display a scribbled page. "Can you read that? The idea, you see, is to provide a handy recognition feature for quick factoring of aliquot numbers. Now you know, of course, that all squares can end in only one of six digits. No square can end in two, three, seven or eight. So my first idea — I'm still not sure that I wasn't on the right track — was to use, 'No, quantity not squared.' You see the utility, I'm sure. Two letters in the first word, 'no.' Eight letters in 'quantity,' three in 'not' and seven in 'squared.' It's easy to remember, I think, and it's self-defining. I consider that a major advantage."

"Oh, it is," groaned Wahl.

CARL went on, "But it's negative. Also there is the chance that 'no' can be misread for 'nought' or 'nothing'—meaning zero. So I tried the reverse approach. A square *can* end in zero, one, four, five, six or nine. Letting the ejaculative 'O' stand for 'zero,' I then wrote: 'Last digit? O, a potential square.' Four, five, zero, one, nine and six — you see? Excuse me. I'm so used to lecturing to undergraduates that sometimes I tend to overexplain. But, although that has a lot to recommend it, it doesn't have — well — *yumph.*" He smiled with a touch of embarrassment. "So, just on an inspiration, I came up with 'Nothing loath, I kissed your concubine.' Rather catchy, no?"

"It's all of that, Carl," agreed Wahl, rubbing his temples. "Say, where's Cornut?"

"You realize that the 'nothing' again is 'zero.'"

"Oh, there he is. Hey, Cornut!"

"Let the boy sleep!" Carl snapped, jolted out of his concentration. He leaned forward to look into the wing-backed seat ahead of him and was gratified to find that Cornut was still snoring faintly.

Wahl burst into a laugh, stopped abruptly and clutched his head. After a moment he said, "You take care of him like he was your baby."

"There is no need to take that sort of tone."

"I've heard of accident-prones,

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but this one's fantastic. Wrecks planes that he ought to be in but isn't!"

Master Carl bit back his rejoinder, paused to regain his temper and pondered an appropriate remark. He was saved the trouble. The jet lurched slightly and the distant thunderheads began to wheel toward the horizon. It wasn't the clouds; it was the jet swinging in for a landing vectored by unseen radar. Only a very small motion, but it sent Wahl lurching frantically to the washroom and it woke Master Cornut.

Carl leaped up as soon as he saw the younger man move, stood over him until his eyes were open. "Are you all right?"

Cornut blinked, yawned and stretched his muscles. "I guess so. Yes."

"We're about to land." There was relief in Carl's voice. He had not expected anything to happen. Why should it? But there had been the chance that something might. "I can get you a cup of coffee from the galley."

"Yes, I'd like — no, never mind. We'll be down in a minute."

Below them, the island was slipping back and forth slantwise, like a falling leaf — a leaf that was falling upward, at least to them, because it was growing enormously fast.

Wahl came out of the washroom and stared at the houses.

"Dirty hovels," he growled.

It was raining beneath them — no, around them — no, over. They were through the patchy cloud layer, and the "hovels" Wahl had glimpsed were clear beneath. Out of the patches of clouds, rain was falling.

"Cum-u-lus of or-o-graph-ic or-i-gin," said St. Cyr's uninflected voice, next to Master Carl's ear. "There is al-ways cloud at the island. I hope the storm does not dis-turb you."

Master Wahl said, "It disturbs *me*."

THEY landed, the jet's wheels screaming thinly as they touched the wet concrete runway. A short, dark man with an umbrella ran out and, holding it protectively over St. Cyr's head, escorted them to the administration building, though the rain had nearly stopped.

It was evident that St. Cyr's reputation and standing were working for them. The whole party was passed through customs under seal; the brown-skinned inspectors didn't even touch the bags. One of them prowled around the stack of the Field Expedition's luggage, carrying a portable voice-typer. "Research instruments," he chanted, singsong, and the machine clacked out its entry. "Research instruments . . . Research instruments."

Master Carl interrupted. "That's

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my personal bag! There aren't any research instruments in it."

"Excuse," said the inspector politely, but he went right on calling every bag "research instruments." The only concession he made to Carl's correction was to lower his voice.

It was, to Master Carl, an offensive performance, and he had it in his mind to speak to someone in authority about it, too. Research instruments! They had nothing resembling a research instrument to their names, unless you counted the collection of handcuffs Master Wahl had brought along, just in case the aboriginals were obstinate about coming along. He thought of bringing it up with St. Cyr, but the president was talking to Cornut. Carl didn't want to cut in. He had no objection to interrupting Cornut, but interrupting the president of the university was something else again.

Wahl said, "What's that over there? Looks like a bar, doesn't it? How about a drink?"

Carl shook his head frostily and stomped out into the street. He was not enjoying his trip, and it was a pity, he thought, because he realized that he had been rather looking forward to it. One needed a change of scene from the Halls of Academe every once in a while. Otherwise one tended to become stuffy and provincial, to lose contact with the mass of humanity outside the university walls. For that reason, Carl had made it a practice, through all the decades since he began to teach, at least once in every year to accept or invent some task that would bring him in contact with the non-academic world . . . They had all been quite as distasteful as this one, but since Master Carl had never realized this, it didn't matter.

He stood in a doorway, out of the fresh hot sun, looking down a broad street. The "filthy hovels" were not filthy at all; it was only Wahl's bad temper that had said that, not his reason. Why, they were quite clean, Master Carl marveled. Not *attractive*. And not *large*. But they did have a quaint and not too repulsive appearance. They were clumsy prefabs of some sort of pressed fiber, plastic-bonded — a local product, most likely, Master Carl diagnosed; pulp from palm trees had gone into the making of them.

A roadable helipopper whirred, dipped, settled in the street before him, folded its vanes and rolled up to the entrance of the building where Carl was standing. The driver jumped out, ran around the side of the craft and opened the door.

NOW, that was odd. The driver acted as though the Empress Catherine were about to set foot on the soil she ruled, and yet what

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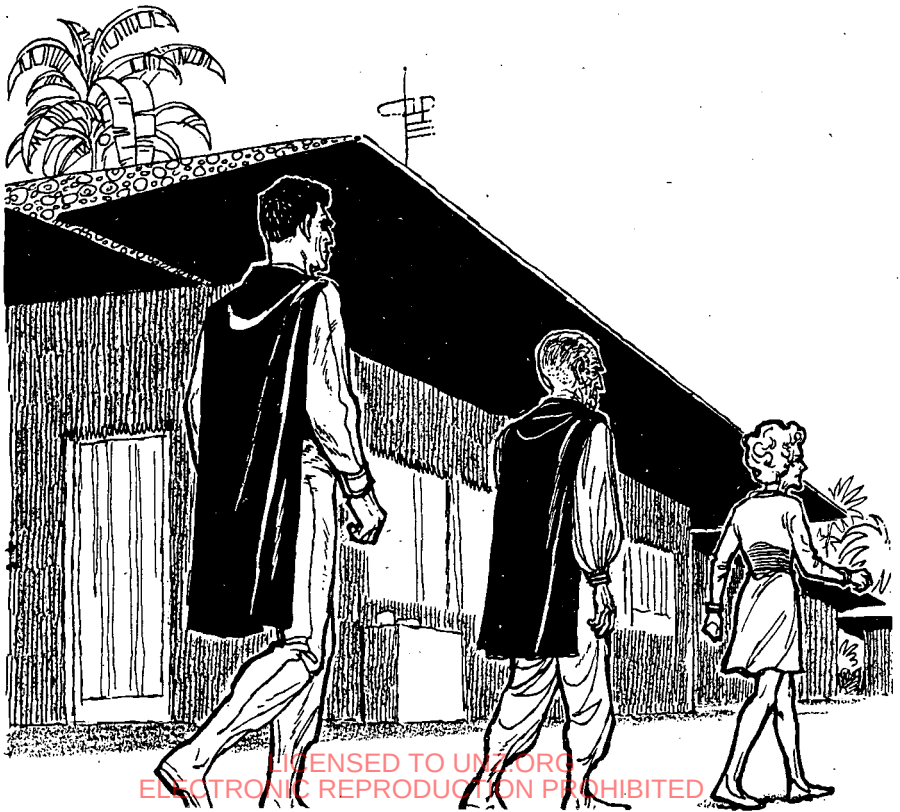
came out of the copter was no great lady but what seemed, at least at first glance, like a fourteen-year-old blonde. Carl pursed his thin lips and squinted into the bright sun. Curious, he marveled — the creature was waving at him!

The creature said, in the brassy voice of no fourteen-year-old, "You're Carl. I'm Madame Sant' Anna. Come on, get in. I've been waiting for you people for an hour and a half, and I've got to get clear back to Rio de Janeiro tonight. And hurry up that old goat St. Cyr, will you?"

To Carl's surprise, St. Cyr didn't strike the child dead. He came out and greeted her as affably as his corpse's voice could be made to sound, and he sat beside her in the front seat of the popper in the wordless association of old friend. But it wasn't the only surprising thing. Looking a little more closely at the "girl" was a kind of surprise too, because a girl she was not. She was a painted



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grandmother with a face-lift.

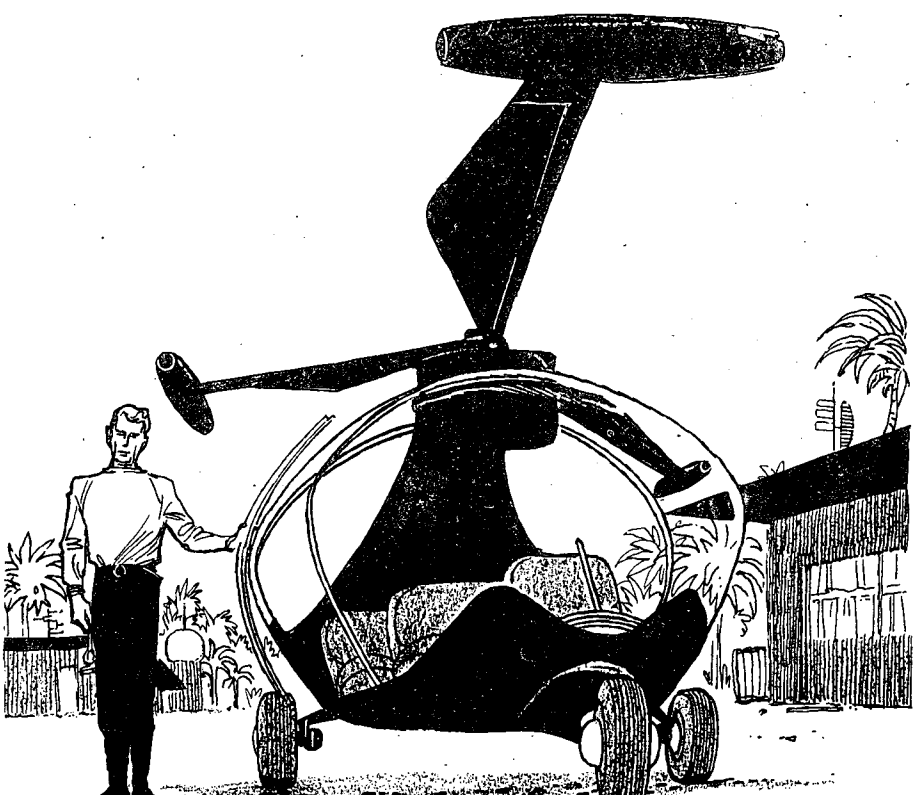
Bermuda shorts and a blonde bob! Why couldn't the woman grow old gracefully, like St. Cyr, or for that matter like Master Carl himself?

All the same, if St. Cyr knew her, she couldn't be *all* bad, and anyway Carl had something else bothering him.

The helipopper was already on the bounce. Carl stood up. "Wait! We're missing someone. Where's Cornut?" No one was listening. The outrageous grandmother was chattering away in St. Cyr's ear, her voice queer and muffled under the sound of the sequenced rockets that whirled the vanes. "President St. Cyr! Please have this pilot turn back." But St. Cyr didn't even turn his head.

Master Carl was worried. He pressed his face to the window, looking back toward the native town, but already it was too far to see anything.

He had *promised* the boy . . .



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He felt very guilty indeed. But of course, he told himself, there was no danger. There were no hostile natives anywhere in the world. Lightning would not strike. Cornut was as safe as if he were in his own bed.

Exactly as safe, Carl's own mind assured him sternly. And no safer.

BUT the fact of the matter was that Cornut was drinking a glass of beer at a dusty sidewalk table. For the first time in — was it forever? — his mind was at rest.

He was not thinking of the anomalies a statistical census had discovered in Wolgren's Distributive Law. He was not thinking of Master Carl's suggestion about term marriage, or even about the annoying interruption that this expedition represented. It did not seem quite as much of an annoyance, now that he was here. It was so *quiet*. He tested it experimentally with his ears and decided that, though odd, it was pleasant. A few hundred yards away some aircraft chugged into the sky, destroying the quiet, but the odd thing was that the quiet returned.

Cornut now had the chance he had been looking for since leaving the clinic, the night before and ten thousand miles away. He ordered another beer from the sallow waitress and reached into his pocket for the sheaf of reports that the medic had handed him.

There were more of them than he had expected.

How many cases had the analyst said had occurred at their own University? Fifteen or so. But here were more than a hundred case histories.

Cornut scanned the summaries quickly and discovered that the problem extended beyond the University — cases from other schools, cases from outside University circles entirely. There seemed to have been a rash of them among Government employees. There was a concentration of twelve on the staff of a single television network.

He read the meaningless names and studied the almost as meaningless facts. One of the TV men had succeeded in short-circuiting a supposedly foolproof electric mattress eight times before he managed to die of it. He was happily married and about to be promoted.

"Ancora birra?" Cornut jumped, but it was only the waiter.

"No, thanks — no, wait." There was no sense in these continual interruptions. "Bring me a couple of bottles and leave them."

The sun was setting, the clouds overhead powerless to shield the island from its heat, for the horizon was bare blue. It was hot and the beer was making him sleepy.

It occurred to him that he really ought to be making an effort to catch up with the rest of the party.

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It was only chance that they had gone off without him; probably Master Carl would be furious.

It also occurred to him that it was comfortable here.

On an island as small as this, he would have no trouble finding them when he wanted them. Meanwhile he still had some beer, and he had all these reports, and it did not seem particularly disturbing to him that, though he read them all from beginning to end, he still found none where the course of the syndrome had taken more than ten weeks to reach its climax. Ten weeks.

He had twenty days left.

MASTER Carl demanded: "Turn back! You can't leave the poor boy to die!"

St. Cyr whinnied surprisingly. The woman shrrilled: "He'll be all right. What's the matter, you want to spoil his fun? Give the kid a chance to kill himself, will you?"

Carl took a deep breath. Then he started again, but it was no use; they insisted on treating the matter lightly. He slumped back in his seat and stared out the window.

The helipopper came down in front of a building larger than most of the prefabs. It had glass in the windows, and bars over the glass. Madame Sant' Anna leaped up like a stick doll and shrilled, "Everybody out! Hop to it, now! I haven't got all day, you know!"

Carl morosely followed her into the building. He wondered how, even for a moment and at a distance, he had taken her for a child. Bright blue eyes under blonde hair, yes; but the eyes were bloodshot, the hair a yellow mop draped on a skull. Loathing her, and worrying about Cornut, he climbed a flight of steps, went through a barred door and looked into a double-barred room.

"The ab-o-rig-i-nes," St. Cyr said in his toneless voice.

It was the local jail, and it had only one cell, and that cell was packed with a dozen or more short, olive-skinned, ragged men and women. There were no children. No children, thought Master Carl petulantly, but they had promised an entire population to select from! These were all *old*. The youngest of them seemed at least a hundred.

"Observe them care-ful-ly," came St. Cyr's slow voice. "There is not a per-son there more than fif-ty years old."

Master Carl jumped. Mind-reading again! He thought with a touch of envy how wonderful it must be to be so wise, so experienced, so all-understanding that one could know, as St. Cyr knew, what another person was thinking before he spoke it aloud. It was the sort of wisdom he hoped his subordinates would attribute to him;

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and they didn't; and it hurt to see that in St. Cyr it existed.

Master Carl moved fretfully down the corridor, looking through the electrified bars at the aborigines. A sallow fat man in flowered shorts came in through the door, bowed to the blonde woman, bowed to St. Cyr, stared contemptuously through the others, and offered a slight inclination of the head to Master Carl. It was an instructive demonstration of how a really adept person could single out the categories of importance of a group of strangers on first contact.

"I," he announced, "am your translator. You wish to speak to your aboriginals, sir. Do so. The short one there, he speaks some English."

"Thank you," said Master Carl.

The short one was a surly looking fellow wearing much the same costume as the others. All of them were basically clad in ragged shorts and a short-sleeved jacket with an incongruous, tight-fitting collar. The clothes looked very, very old; not merely worn, but *old*. Men and women dressed alike. Only in the collars and shoulder-bars of the jackets were there any particular variations.

They seemed to have military insigne to mark their ranks. The woman's collar, for example, bore a red cloth patch with a gold stripe running through it; the red was faded, the gold was soiled, but once they had been bright. Across the gold stripe was a five-pointed star of yellow cloth. The shortest of the men, the one who looked up when the translator spoke, had a red patch with much more gold on it, and with three stars of greenish, tarnished metal. Another man had a plain red patch with three cloth stars.

THESE three, the two men and the women, stepped forward, placed their palms on their knees and bowed jerkily. The one with the metal stars spoke breathily: "Tai-i Masatura-san. I captain, sir. These are of my command: Heicho Ikuri, Joto-hei Shokuto."

Master Carl stepped back fastidiously. They *smelled!* They didn't look dirty, exactly, but their complexions were all bad — scarred and pitted and seamed, as well as sallow; and they did have a distinct sour aura of sweat hanging over them.

He glanced at the interpreter. "Captain? Is that an army rank?"

The interpreter grinned. "No army now," he said reassuringly. "Oh, no. Long gone. But they keep military titles, you see? Father to son, father to son, like that. This fellow here, the tai-i, he tells me they are all part of Imperial Japanese Expeditionary Force which presently will make assault landing in Washington, D.C. Tai-i is

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captain; he is in charge of all of them, I believe. The heicho — that's the woman — is, the captain tells, a sort of junior corporal. More important than the other fellow, who is what they say a superior private."

"I don't know what a corporal or a private is."

"Who does? But to them it is important, it seems." The translator hesitated, grinned, and wheezed: "Also, they are related. The tai-i- is daddy, the heicho is mommy, the joto-hei is son. All named Masatura-san."

"Dirty looking things," Master Carl commented. "Thank heaven I don't have to go near them."

"Oh," said a grave, slow voice behind him, "but you do. Yes, you do. It is your re-spon-si-bi-li-ty, Carl. You must su-per-vise their tests by the med-ics."

MASTER Carl frowned and complained, but there was no way out of it. St. Cyr gave the orders, and that was the order he gave.

The medics looked over the aboriginals as thoroughly as any dissecting cadavers. Medics, thought Master Carl in disgust. How can they! But they did.

They had the men and women strip — flaccid breasts, sagging bellies, a terminator of deepening olive showing the transition from shade to sun at the lines marked by collars and cuffs and the hems of their shorts. Carl took as much of it as he could, and then he walked out—leaving them nakedly proud beside their rags, while the medics fussed and muttered over them like livestock judges handing out ribbons.

It was not only that he was tired of the natives — whose interest to a mathematician was not zero, no, but a quantity vanishingly small. More than that, he wanted to find Cornut.

IN the light of a huge moon, Carl retraced his steps to where the helipopper was casting a black silhouette on the silver dust. The pilot was half asleep on the seat, and Carl, with a force and determination previously reserved for critical letters in *Math. Trans.*, said sharply: "Up, you! I haven't all night!"

The startled pilot was airborne with his passenger before he realized that it was neither his employer, the young-old blonde, nor the old, old St. Cyr.

By then it did not much matter. In for a penny, in for a pound; when Carl ordered him back to the town where the jet had landed, the pilot grumbled to himself but complied.

It was not hard to find where Cornut had gone. The scooter police told Carl about the sidewalk cafe, the cashier told him

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about the native cafeteria, the counterman had watched Cornut, failing to finish his sandwich and coffee, stagger back to — the airport again. There the traffic tower had seen him come in, try to get transportation to follow the others, fail, and stagger off into the jungle on the level truck road.

He had been hardly able to keep his eyes open, the towerman added.

Carl pressed the police into service. He was frightened.

The little scooter bounced along the road, twin spotlights scanning the growth on both sides. Please find him, begged Carl silently. I *promised* him . . .

The brakes squealed and the scooter skidded to a halt.

The police were small, thin, young and agile, but Master Carl was first off the scooter and first to the side of the huddled figure under the breadfruit tree.

For the first time in weeks, Cornut had fallen asleep — passed out, in fact — without a guardian angel. The moment of helplessness between walking and sleeping, the moment that had almost killed him a dozen times, had caught him by the side of a deserted road, in the middle of an uninhabited sink of smelly soft vegetation.

Carl gently lifted the limp head.

"My God," he said, a prayer instead of an oath, "he's only drunk. Help me get him to bed."

CORNUT woke up with a sick mouth and a banging head. Master Carl was seated at a field desk, a shaded light over his head. "Oh, you're up. Good. I had the porter call me a few minutes early, in case—"

"Yes. I know." Cornut waggled his jaw experimentally, but that was not a pleasant experiment. Still, he felt very good. He had not been drunk in a long, long time, and a hangover was strange enough to him to be interesting in itself.

He sat on the side of the bed. The porter had evidently had other orders from Master Carl, because there was coffee in a pewter pot, and a thick pottery cup. Cornut drank some.

Carl watched him for a while, then browsed back to his desk. He had a jar of some faintly greenish liquid and the usual stack of photographic prints. "How about this one?" he asked. "Does it look like a star to you?"

"No."

Carl dropped it back on the heap. "Becquerel's was no better."

"I'm sorry, Carl," Cornut said cheerfully. "You know I don't take much interest in psion—"

"Cornut!"

"Sorry. In your researches into paranormal kinetics, then."

Carl said doubtfully, having already forgotten what Cornut had said, "I thought Greenlease had put me on the track of something.

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You know I've been trying to manipulate single molecules by P. K. — using photographic film — on the principle that as the molecules are just about to flip over into another state, not much energy should be needed to trigger them. Well, Greenlease told me about Brownian movement. Like this." He held the jar of soap solution to the light. "See?"

Cornut got up and took the quart jar from Master Carl's hand. In the light, he could see that the greenish color was the sum of myriad wandering points of light, looking more gold than green. "Brownian movement? What about it?"

"The actual motion of molecules," Carl said solemnly. "One molecule impinging on another, knocking it into a third, the third knocking it into a fourth. There's a term for it in—"

"In math, of course. Why, certainly. Drunkard's Walk." Cornut remembered the concept with clarity and affection. He had been a second-year student, and the House Master was old Wayne; the audiovisual had been a marionette drunkard, lurching away from a doll-sized lamp post with random drunken steps in random drunken directions. Cornut smiled at the jar.

"Well, what I want to do is sober him up. Watch." Carl puffed and thought; he was a model of concentration; Rodin had only sketched the rough outlines, compared to Master Carl. Then he panted. "Well?"

Apparently, Cornut thought, what Carl had been trying to do was to make a molecule move in a straight line. "I don't think I see a thing," he admitted.

"No. Neither do I . . . Well," said Master Carl, retrieving his jar, "even a negative answer is an answer. But I haven't given up yet. I have a few more thoughts on photographs — if Greenlease can give me a little help." He sat down next to Cornut. "And you?"

"You saw."

Carl nodded seriously. "I saw that you were still alive. Was it because you were on your own Drunkard's Walk?"

Cornut shook his head. He didn't mean no. He meant, "How can I tell?"

"And my idea about finding a wife?" asked Carl.

"I don't know."

"That girl in the dining hall," Carl said with some acuteness. "How about her?"

"Locille? Oh, good Lord, Carl, how do I know about her? I — I just barely know her name. Anyway, she seems to be pretty close to Egerd."

Carl got up and wandered to the window. "Might as well have breakfast. The aboriginals ought to be ready now." He stared at the crimson morning. "Madame Sant'-

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Anna has asked for a helper to get the aboriginals to Valparaiso," he said thoughtfully. "I think I'll help her out."

V

TEN thousand miles away, in the early afternoon, Locille was not very close to Egerd at all.

"Sorry," she said. "I *would* like to. But—"

Egerd stood up.

"What's the record for suiciders?" he said angrily. "Ten weeks? Good enough. I'll be around to see you again — along about the first of the month."

He stalked out of the girls' dayroom.

Locille sighed, but as she did not know what to do about Egerd's jealousy, she did nothing. It was difficult to be a girl sometimes.

For here's Locille, a girl, a pretty girl, full of a girl's problems. It is a girl's business to keep her problems to herself. It is a girl's business to looked poised and lovely. And available.

It is not true that girls are made of sugar and spice. These mysterious creatures, enameled of complexion, scented with distant flower fields and musk, constricted *here* and enlarged *there* — they are animals, as men are animals, sustained by the same sludgy trickle of partly fermented organic matter — and indeed with a host of earthy problems men need never know.

Womanhood has always been a triumph of artifice over the animal within.

And here, as we say, is Locille, twenty years old, student child of a retired subway enginer and his retired social-worker wife.

She is young.

She is nubile.

She has the health of a plowmare.

What can she know of mysteries?

But she knew.

ON the night the Field Expedition was due to return, Locille was excused all of her evening classes. She took advantage of an hour of freedom to telephone her parents, out on the texas. She discovered, as she had discovered a hundred times before, that there was nothing to say between them; and returned to the kitchens of the Faculty Mess in time to take up her duties for the evening.

The occasion was the return of the Field Expedition. It promised to be a monstrous feast.

More than two hundred visiting notables would be present, as well as most of the upper faculty of the University itself. The kitchens were buzzing with activity. All six C.E.s were on duty, all busy.

The Culinary Engineer in charge of Sauces and Gravies spied Locille first and drafted her to

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help him, but there was a struggle; the Engineer whose charge was Pastries knew her and wanted her too. Sauces and Gravies won out, and Locille found herself emulsifying caked steer blood and powdered spices in a huge metal vat. The sonic whine of the emulsifier and the staccato hiss of the steam as she valved it expertly into the mixture drowned out the roar of the settling jet — the Field Expedition had returned without her knowing it.

The first clue she had was when there was a commotion at one end of the kitchens, and she turned, and there was Egerd, shepherding three short, sallow persons she didn't recognize.

He saw her. "Locille! Come on over and meet the aboriginals!"

She hesitated and glanced at her C.E., who pantomimed take-ten-if-it-won't-spoil-the-gravy. Locille slipped off her gauntlets, set the automatic timers and thermostats and ducked past the kneading, baking, pressure-cooking machines of the Faculty Kitchen toward Egerd and his trophies.

"They're Japanese," he said proudly. "You've heard of World War Two? They were abandoned on an island, and their descendants have been there ever since. Say, Locille—"

She took her eyes off the aboriginals to look at Egerd. He seemed both angry and proud.

"I have to go to Valparaiso," he said. "There are six other aboriginals who are going to South America, and Master Carl picked me to go along."

She started to answer, but the young instructor, Master Cornut, was wandering into the room, looking thoughtful.

Egerd looked thoughtfully back at him.

"I wondered why Carl picked me for this," he said, not bitterly, but with comprehension. "Good enough." He turned to leave through another door. "He can have his chance — for the next sixteen days."

THOUGHTFUL Cornut looked, and thoughtful he was. He had never proposed marriage before.

"Hello, Locille," he said formally.

She said, "Hello, Master Cornut."

He said, "I, uh, want to ask you something."

She said nothing.

He looked around the kitchen as though he had never been in it before, which was probably so. He said, "Would you like to — ah — would you like to meet me on Overlook Tower tomorrow?"

"Certainly, Master Cornut."

"That's fine," he said politely, nodding, and was halfway into the dining room before he realized he hadn't told her what time. Maybe

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she thought he expected her to stand there all day long!

He hurried back. "At noon?"

"Yes, Master Cornut."

"And don't make any plans for the evening," he commanded, hurrying away. It was embarrassing. He had never proposed marriage before, and had not succeeded in proposing now.

But he was wrong. He had. He didn't know it, but Locille did.

The rest of the evening passed very rapidly for Cornut. The dinner was a great success. The aborigines were a howl. They passed among the guests, smoking their pipe of peace with anyone who cared to try it, which was everyone, and as the guests got drunker, the aborigines, responding to every toast with a loud *Banzai!*, then a hoarse one, then a simper — the aborigines got drunker still.

Cornut caught glimpses of Locille from time to time at first, then not at all. He asked after her, asked the waitress, asked the aborigines, finally found himself asking — or telling — about Locille with his arm around the flaccid shoulders of Master Wahl. He was quite drunk early, and he kept on drinking. He had moments of clarity. Master Carl listening patiently while Cornut tried to demonstrate Brownian motion — the Drunkard's Walk of molecules — in, appropriately, a rye-and-ginger-ale; a queer, alone moment when he realized he was staggering around the empty kitchen, calling Locille's name to the cold copper caldrons.

Somehow, God knows how, he found himself in the elevators of Math Tower, when it must have been very late, and Egerd in a cream-colored robe was trying to help him into his room. He knew he said something to Egerd that must have been either coarse or cruel, because the boy turned away from him and did not protest when Cornut locked his door, but he did not know what coarse or cruel thing he had said. Had he mentioned Locille? When had he not!

He fell sprawled on his bed, giggling. He had mentioned Locille a thousand times that night, and he stroked the pillow beside him as he drifted off to sleep.

HE drifted off to sleep and halted, for a moment sober, for a moment terrified, knowing that he was on the verge of sleep, again alone. But he could not stop.

He could not stop because he was a molecule in a sea of soapy soup and Master Carl was hurling him into the arms of Locille.

Master Carl was hurling him at Locille because Egerd had hurled him at Master Carl; Locille thrust him at St. Cyr, and St. Cyr, voicelessly chuckling, hurled him clear out of the jar, and he could not stop.

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He could not stop because St. Cyr told him: "You are a molecule, drunken molecule. You are a molecule, drunk and random, without path. You are a drunken molecule and you cannot stop."

He could not stop though the greatest voice in the world was shouting at him: "YOU CAN ONLY DIE, DRUNKEN MOLECULE! YOU CAN DIE – YOU CANNOT STOP!"

He could not stop because the world was reeling, reeling. He tried to open his eyes to halt it, but it would not stop.

He was a molecule.

He saw that he was a molecule and he saw he could not stop.

Then –

the molecule

– stopped.

VI

EGERD tried pounding on the locked door for nearly five minutes and then went away. He could have stayed longer, but he didn't want to. He thought it out carefully and concluded, first, that he had done what he undertook to do – in spite of the fact that Cornut's choosing to marry Locille upset the undertaking – and second, that if he was too late, he was already too late.

An hour later, Cornut woke up.

He was alive, he noticed immediately.

It had been a most peculiar dream. It did not seem like a dream. His afternoon lecture, with Pogo Possum drawling hickory-bark rules for factoring large integers, was much more fantasy in his mind than the dream-scene of himself contemplating himself, staggering drunk and with a bottle in his hand, trapped in the ceaseless Brownian zigzag. He knew that the only way a molecule could stop was to die, but curiously he had not died.

He got up, dressed and went out.

He was remarkably hung over, but it was much, much better outside. It was bright morning and, he remembered very clearly, he had an engagement with Locille at noon.

He was on tape for the A.M. lecture; it gave him the morning off. He walked about the campus aimlessly, past the green steel and glass of the stadium, past the broad lawns of the lower campus to the bridge. The Med School lay huddled under the bridge itself. He liked the bridge, liked its sweep across the Bay, liked the way it condescended to drop one pylon to the island where the University had been built. He very much liked that pylon. That was Overlook Tower.

On impulse, thinking that this was a good time to be wholly sober, he stopped at the clinic to get a refill on his wake-up pills. The clinic

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was not manned at that hour, except for emergencies, but because Cornut was a returnee, he was admitted to the automatic diagnosis machines.

It was very much the same as the experience before the Field Expedition, except that there was no human doctor at all. A mechanical finger inserted a hair-thin tendril into his arm and tasted his blood, compared it with the recent chromatograph, and whirred thoughtfully while it considered if there had been changes. In a moment the *Solution* light winked pink, there was a click and clatter, and in a hopper by his hand there dropped a plastic box of his pills.

He took one. Ah, fine! It was a strange and rewarding sensation. Whatever the pills contained, they fought fatigue at first encounter. He could trace the course of that pill clear down his throat and into his abdomen. The path tingled with well-being. He felt pretty good. No, he felt *very* good.

He walked out into the fresh air again, humming to himself.

It was a long climb up the pylon to Overlook Landing, but he did it on foot, feeling comfortable all the way. He popped another pill into his mouth and waited in patient good humor for Locille.

SHE came promptly from her class. From the base of the pylon, she glanced up at the Overlook Landing, nearly two hundred feet over her head. If Cornut was there, she couldn't see him. She rode up on the outside escalators, twining round the huge hexagonal tower, for the sake of the air and the view.

It *was* a lovely view — the clean white rectahedron of the Biologicals factory, the dome-shaped Clinic under the spreading feet of the pylon itself, the bright University buildings, the green of the lawns, the two dissimilar blues of water and sky.

Lovely . . .

But she was nervous.

She stepped off the escalator, turned around the bulk of the pylon and bowed. "Master Cornut," she said.

The wind caught at her blouse and hair. Cornut stood dreaming over the rail, his own hair blown carelessly around his forehead. He turned idly and smiled with sleepy eyes.

"Ah," he said. "Locille." He nodded as though she had answered — she had not. "Locille, I need a wife. You will do."

"Thank you, Master Cornut."

He waved a gentle hand. "You aren't engaged, I understand?"

"No." Unless you counted Egerd — but *she* didn't count Egerd.

"Nor pregnant, I presume?"

"No. I have never been pregnant."

"Oh, no matter, no matter," he

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said. "I don't mind that. No sort of physical problem, I suppose?"

"No." She didn't meet his eye that time, though. For there *was* a sort of physical problem, in a way. There couldn't have been a pregnancy without a man, and she had avoided that.

She stood waiting for him to say something else, but he was a long time in getting around to it. Out of the corner of her eye, she noted that he was taking pills out of that little box as though they were candy. She wondered if he knew he was taking them.

She remembered the knife-edge at his throat in class. She remembered the stories Egerd had told.

Silly business.

Why would anyone try to kill himself?

HE collected himself and cleared his throat, taking another pill. "Let me see," he mused. "No engagements of record, no physical bars, no consanguinity, of course — I'm an only child, you see. Well, I think that's everything, Locille. Shall we say tonight, after late class?" He looked suddenly concerned. "That is — you have no objection, do you?"

"I have no objection."

"Good." He nodded, but his face remained clouded. "Locille," he began, "perhaps you've heard stories about me. I — I have had a number of accidents lately. And one reason why I wish to take a wife is to guard against any more accidents. Do you understand?"

"I understand that, Master Cornut."

"Very good. Very good." He took another pill out of the box, hesitated, glanced at it.

His eyes widened.

Locille stood motionless; she didn't know that a sudden realization had come to Master Cornut.

It was the last pill in the box. But there had been twenty — at least twenty — not more than three-quarters of an hour before — twenty!

He cried hoarsely: "Another accident!"

It was as if the realization released the storm of the pills. Cornut's pulse began to pound. His head throbbed in a new and faster tempo. The world spun scarlet around him. A rush of bile clogged his throat.

"Master Cornut!"

But it was already too late for the girl to cry out. He knew; he had acted. He hurled the box out into space, stared at her, crimson, then without ceremony leaped to the rail.

Locille screamed.

She was after him, clutching at him, but impatiently he shrugged her off, and then she saw that he was not climbing to hurl himself to death. He had his finger down his throat. Without romance or

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manners, Master Cornut was getting the poison out of him quickly, efficiently —

Locille stood by silently, waiting.

After a few minutes his shoulders stopped heaving, but he leaned on the rail, staring, for minutes after that. When he turned, his face was the racked face of a damned soul.

"I'm sorry. Thanks."

Locille said softly, "But I didn't do anything."

"Of course you did. You woke me up — "

She shook her head. "You did it by yourself, you know. You did."

He looked at her with irritation, then with doubt. And then, at last, he looked at her with the beginning of hope.

VII

THE ceremony was very simple. Master Carl officiated. There was a friendly meal, and then they were left alone, Locille and Cornut, by the grace of the magisterial power vested in house masters man and wife.

They went to his room.

"You'd better rest," said Locille.

"Right." He sprawled on the bed. He was very much aware of her, now studying, now doing womanlike tasks around his room — no, *their* room. She was as inconspicuous as a flesh-and-blood person could be, moving quickly when she moved. But she might have been neon-lit and blaring with sirens for the way she kept distracting him.

He stood up and dressed himself, not looking at her. She said questioningly, "It's time for sleep, isn't it?"

He fumbled. "Is it?" But the clock said yes, it was: he had slept the day through. "Right," he said, as though it were some trivial thing and not world-shaking at all. "Yes, it's time for — sleep. But I think I will take a walk around the campus, Locille. I need it."

"Certainly." She waited, polite and calm.

"Perhaps I shall be back before you are asleep," he went on. "Perhaps not. Perhaps — " He was rambling. He nodded, cleared his throat, picked up his cloak and left.

No one was in the corridor outside, no one in sight in the hall.

There was a thin electronic *peep* from the robot night-proctors, but that was all right. Master Cornut was no undergraduate, to wriggle under the scanning beams. It was his privilege to come and go as he chose.

He chose to go.

He walked out onto the campus, quiet under a yellow moon, the bridge overhead ghostly silver. There was no *reason* why he should be so emotionally on edge. Locille was only a student.

The fact remained — he *was* on edge.

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But why should he be? Student marriage was good for the students, good for the masters; custom sanctioned it; and Master Carl, from the majesty of his house master's post, he had suggested it in the first place.

Queerly, he kept thinking of Egerd.

There had been a look on young Egerd's face, and maybe that was what bothered him. Master Cornut was not so many years past his sheepskin that he could dismiss the possible emotions of an undergraduate. Custom, privilege and law to one side, the fact remained that a student quite often did feel jealous of a master's prerogatives. While a student, Cornut himself had contracted no liaisons to be interfered with. But other students had. And there was no doubt that, in Egerd's immature, undergraduate way, he might well be jealous.

BUT what did that matter? Egerd's jealousy could harm only himself. No serf, raging inwardly against his lord's *jus primae noctis,* was less able to make his anger felt than Egerd. But somehow Cornut was feeling it.

He felt almost guilty.

He was no logician; he was Mathematics. But this whole concept of *right,* he thought as he paced along the river bank, needed some study. What the world sanctioned was clear: The rights of the higher displaced the rights of the lower, as an atom of fluorine will drive oxygen out of a compound. But *should* it be that way?

It *was* that way — if that was an answer.

And all of class, all of privileges, all of law, seemed to be working to produce one single commodity— a product which, of all the world's goods, is unique in that it has never been in short supply, never quite satisfied its demand and yet never failed to find a market: babies. Wherever you looked, babies. In the creches in the women's dorms, in the playrooms attached to the rooms of the masters — babies.

It was almost as though it had been planned that way; custom and law determined the fact that as many adult humans as possible spend as much of their time as possible in performing the acts that made babies arrive. Why? What was the drive that produced so many *babies?*

It wasn't a matter of sex alone — it was *babies.* Sex was perfectly possible and joyous under conditions that made the occurrence of babies utterly impossible; science had arranged that decades, even centuries, before. But contraception was no answer. And so, all over the world, this uncomplicated and unaided practice of baby-making added a clear two per cent to the world's population every time the Earth sailed around the Sun.

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Two per cent per year!

There were now something over twelve billion persons alive. Next year's census would show two per cent more than that. And why?

What made babies so popular?

Crazy as it was, the conclusion forced itself on Master Cornut: It was *planned* that way.

By whom, he wondered, settling down to a long night's thoughtful ramble and a pursuing of the line of thought to its last extreme —

But not tonight, because he looked up and there was his own dorm. His feet had known more clearly than he the ultimate answer to the question: *Babies?*

He was back at the entrance of Math Tower where the girl, Locille, was waiting.

THE thing was — the bed. She had had a bed of her own moved into the room, for that was the way it was done; but of course there was *his* bed already there, much larger, so that —

Well, which bed would she be in?

He took a deep breath, nodded blindly to the unseeing electronic night-proctor, and opened the door of his room.

A riotous alarm bell shattered the stillness.

Master Cornut stood staring, stupidly, while the flesh-and-blood undergraduate charged with supervising the corridors came peering worriedly around the corner, drawn by the sound; and the bell continued to ring. Then he realized it was connected with the door. It was his automatic alarm bell, rigged by himself. But he had not connected it this night.

He stepped in quickly, threw a scowl at the undergraduate, and closed the door. The ringing stopped.

Locille was rising from the bed — *his* bed.

Her hair was braided about her head and her eyes were downcast but bright. She had not been asleep. She said, "You must be tired. Would you like me to fetch you something to eat?"

He said in a tremblingly stern voice, "Locille, why did you bug the door?"

"Why, to wake me up when you came in. The bell was there. I only had to turn it on."

"And why?"

"Why?" she said. "I wanted to." And she yawned, rather prettily, and excused herself with a smile, and turned to straighten the covers on the bed.

Cornut, watching her from behind as he had never watched her from the front, made note of two incredible facts.

The first was that this girl, Locille, was beautiful. She was wearing very little, only a sleeping skirt and a sleeping yoke, and there was no doubt of her figure; and she was wearing no makeup that the eye

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could see, and there was no doubt about her face.

Amazing, Cornut told himself, conscious of commotions inside himself, amazing, but I want this girl. I want her very much.

And that led him to the other fact, which was more incredible still.

He looked at her and knew what had never entered into his calculations. It had never occurred to him that *she* might want *him.*

TAP, tap. The girl shook him awake — fully awake. "What do you want?" Cornut cried crossly at the door. Beside him, Locille made a face, a sweet, a mock-arrogant face, that was a tender caricature of his own; so that by the time the morning-proctor opened the door a crack and peered around it, Cornut was smiling at him.

Wonders never-ceasing, thought the proctor, and said timidly, "Master Cornut, it is eight o'clock."

Cornut drew the covers over Locille's bare shoulder. "Go away," he said. "Thanks, but go away."

The door closed, and one of Locille's pink slippers slapped lightly against it. She raised the other to toss after the first. Cornut caught her arm, laughing very softly; and she turned to him, not quite laughing, and kissed him, and sprang away.

"And *stay* awake," she warned. "I have to go to class."

Cornut leaned back against the pillow.

Why, it was a pleasant morning, he thought, and maybe in a way a pleasant world! It was perfectly astonishing what hues and brightnesses there were in the world that he had either never suspected or long forgotten. He watched the girl, miraculously a part of his life, a segment joined on without a trace or seam where he had never suspected a segment was missing.

Quick-quick, she was dressed; much too quickly. "You," said Cornut, "are in much too much of a hurry to get out of here."

Locille came and sat on the edge of the bed. Even in the uniform she was beautiful now. That was another amazing thing. It was like knowing that a chalice was purest gold under the enamel; the colors were the same, the design was the same; but suddenly what had been a factory product was become a work of art, simply through knowing what graces lay underneath.

She said, "That is because I am in a hurry to return." She looked at him again, questioningly. "You won't go back to sleep?"

"Of course not." She was frowning slightly, he saw with fondness, reminding him of the reason he had sought a companion in the first place — *that* old reason.

She kissed him, rose, found her carry-all where she had left it on a chair, and her books. She caroled

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softly to herself: "Strike the Twos and strike the Threes, the Sieve of Eratosthenes. When the multiples — Cornut, you're *sure* you won't go back to sleep?"

"Sure."

She stood, hesitating with one hand on the door. She said doubtfully, "Maybe you'd better take a wake-up pill. Will you?"

"I will," he said, rejoicing in being nagged.

"And you'd better start dressing in a few minutes. It's only half an hour until your first class —"

"I know."

She blew him a kiss, and a smile; and she was gone.

CORNUT dutifully got up, found himself the pillbox with the red and green sleeping regulators, took one and returned to bed. He had never felt better in his life.

He lay back against the pillow, utterly relaxed and at peace. He had bought himself an alarm clock and it turned out to be a wife. He smiled at the low cream ceiling and stretched and yawned. What a perfectly fine bargain! What a superperfect alarm clock!

And that reminded him. He glanced at his watch, but he'd taken it off, and the wall clock was out of his angle of vision. Well, no matter; the wake-up pill would keep him from going back to sleep again. It felt as though he had been lying here half an hour, but it couldn't be more than five minutes; that was how wake-up pills worked.

He fumbled in the little divided box. Fortunate that they were handy; another pill would make doubly sure.

He swallowed it, leaned back again and yawned. There was something about the pillow...

He turned his head, sniffed, breathed deeply. Yes, there was Locille about the pillow; that was what it was. Locille, who left a fragrance behind her. Beautiful fragrance of Locille. Beautiful name. Beautiful girl. He caught himself yawning again —

Yawning?

Yawning!

He blinked the eyes that were much too heavy, and tried to turn the very weary head. Yawning! But after two wake-up pills — or was it three — or six?

History was repeating!

Red pills for wake-up, green for sleep. The green pills, he sobbed in his thoughts, he'd been taking the *green* ones!

Oh, Lord, he whimpered soundlessly — oh, Lord, why now? Why did you wait to catch me until I *cared?*

— FREDERIK POHL

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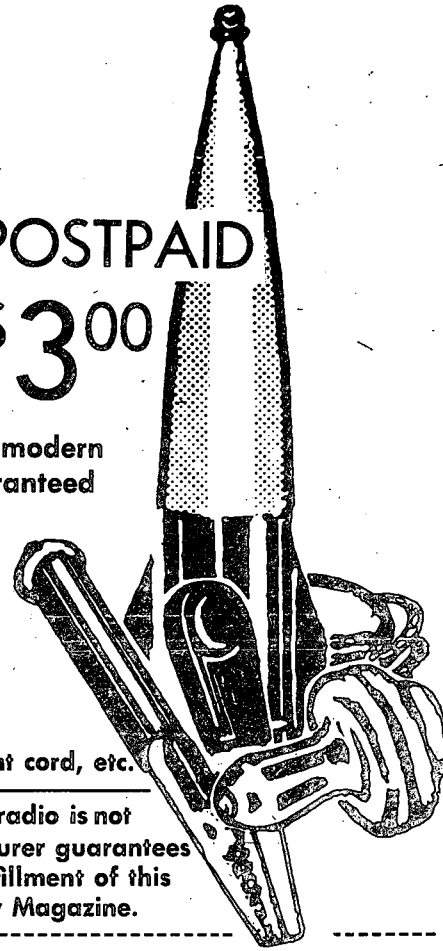

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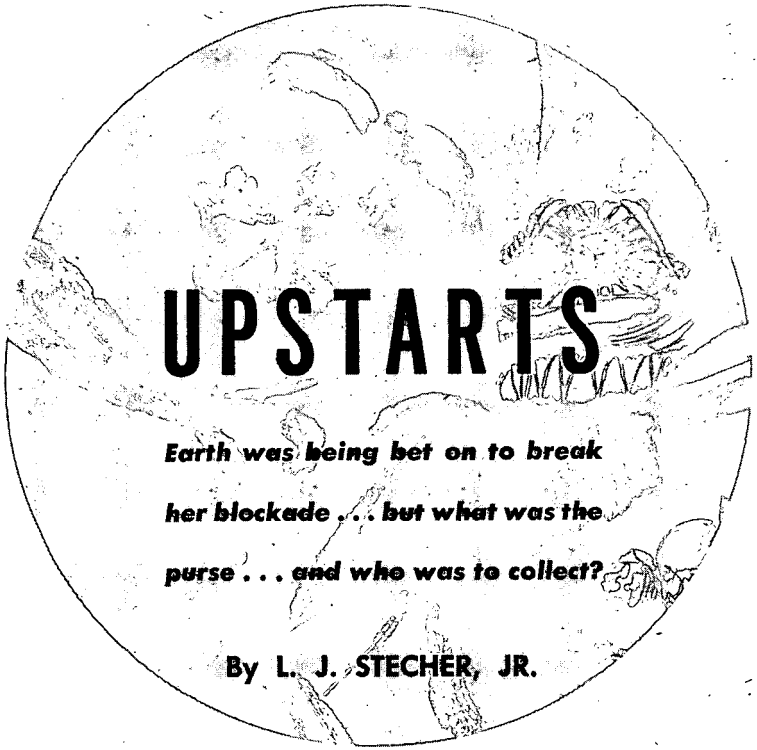

UPSTARTS

Earth was being bet on to break her blockade . . . but what was the purse . . . and who was to collect?

By L. J. STECHER, JR.

THE sight of an Earthman on Vega III, where it was impossible for an outlander to be, brought angry crowds to surround John Crownwall as he strode toward the palace of Viceroy Tronn Ffallk, ruler of Sector XII of the Universal Holy Empire of Sunda. He ignored the snarling, the spitting, the waving of boneless prehensile fingers, as he ignored the heavy gravity and heavier air of the unfamiliar planet.

John Crownwall, florid, red-headed and bulky, considered himself to be a bold man. But here, surrounded by this writhing, slithering mass of eight-foot creatures, he felt distinctly unhappy. Crownwall had heard about creatures that slavered, but he had never before seen it done. These humanoids had large mouths and sharp teeth, and they unquestionably slavered. He wished he knew more about them. If they carried out the threats of

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their present attitude, Earth would have to send Marshall to replace him. And if Crownwall couldn't do the job, thought Crownwall, then it was a sure bet that Marshall wouldn't have a chance.

He climbed the great ramp, with its deeply carved Greek key design, toward the mighty entrance gate of the palace. His manner demonstrated an elaborate air of unconcern that he felt sure was entirely wasted on these monsters. The clashing teeth of the noisiest of them were only inches from the quivering flesh of his back as he reached the upper level. Instantly, and unexpectedly to Crownwall, the threatening crowd dropped back fearfully, so that he walked the last fifty meters alone.

Crownwall all but sagged with relief. A pair of guards, their purple hides smoothly polished and gleaming with oil, crossed their ceremonial pikes in front of him as he approached the entrance.

"And just what business do you have here, stranger?" asked the senior of the guards, his speaking orifice framing with difficulty the sibilances of Universal Galactic.

"What business *would* I have at the Viceroy's Palace?" asked Crownwall. "I want to see Ffallk."

"Mind your tongue," growled the guard. "If you mean His Effulgence, Right Hand of the Glorious Emperor, Hereditary Ruler of the Seventy Suns, Viceroy of the Twelfth Sector of the Universal Holy Empire"—Universal Galactic had a full measure of ceremonial words—"he sees only those whom he summons. If you know what's good for you, you'll get out of here while you can still walk. And if you run fast enough, maybe you can even get away from that crowd out there, but I doubt it."

"Just tell him that a man has arrived from Earth to talk to him. He'll summon me fast enough. Meanwhile, my highly polished friends, I'll just wait here, so why don't you put those heavy pikes down?"

Crownwall sat on the steps, puffed alight a cigarette, and blew expert smoke rings toward the guards.

An elegant courtier, with elaborately jeweled harness, bustled from inside the palace, obviously trying to present an air of strolling nonchalance. He gestured fluidly with a graceful tentacle. "You!" he said to Crownwall. "Follow me. His Effulgence commands you to appear before him at once." The two guards withdrew their pikes and froze into immobility at the sides of the entrance.

Crownwall stamped out his smoke and ambled after the hurrying courtier along tremendous corridors, through elaborate waiting rooms, under guarded doorways, until he was finally bowed through a small curtained arch.

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At the far side of the comfortable, unimpressive room, a plump thing, hide faded to a dull violet, reclined on a couch. Behind him stood a heavy and pompous appearing Vegan in lordly trappings. They examined Crownwall with great interest for a few moments.

"It's customary to genuflect when you enter the Viceroy's presence," said the standing one at last. "But then I'm told you're an Earthling. I suppose we can expect you to be ignorant of those niceties customary among civilized peoples."

"It's all right, Ggaran," said the Viceroy languidly. He twitched a tentacle in a beckoning gesture. "Come closer, Earthling. I bid you welcome to my capital. I have been looking forward to your arrival for some time."

CROWNWALL put his hands in his pockets. "That's hardly possible," he said. "It was only decided yesterday, back on Earth, that I would be the one to make the trip here. Even if you could spy through buildings on Earth from space, which I doubt, your communications system can't get the word through that fast."

"Oh, I didn't mean *you* in particular," the Vegan said with a negligent wave. "Who can tell one Earthling from another? What I meant was that I expected someone from Earth to break through our blockade and come here. Most of my advisors — even Ggaran here — thought it couldn't be done, but I never doubted that you'd manage it. Still, if you were on your home planet only yesterday, that's astonishing even to me. Tell me, how did you manage to get here so fast, and without even alerting my detection web?"

"You're doing the talking," said Crownwall. "If you wanted someone from Earth to come here to see you, why did you put the cordon around Earth? And why did you drop a planet-buster in the Pacific Ocean, and tell us that it was triggered to go off if we tried to use the distorter drive? That's hardly the action of somebody who expects visitors."

Ffallk glanced up at Ggaran. "I told you that Earthlings were unbelievably bold." He turned back to Crownwall. "If you couldn't come to me in spite of the trifling inconveniences I put in your way, your presence here would be useless to both of us. But you did come, so I can tell you that although I am the leader of one of the mightiest peoples in the Galaxy, whereas there are scarcely six billions of you squatting on one minor planet, we still need each other. Together, there is nothing we can't do."

"I'm listening," said Crownwell.

"We offer you partnership with us to take over the rule of the

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Galaxy from the Sunda – the so-called Master Race."

"It would hardly be an equal partnership, would it, considering that there are so many more of you than there are of us?"

His Effulgence twitched his ear stalks in amusement. "I'm Viceroy of one of the hundred Sectors of the Empire. I rule over a total of a hundred Satrapies; these average about a hundred Provinces each. Provinces consist, in general, of about a hundred Clusters apiece, and every Cluster has an average of a hundred inhabited solar systems. There are more inhabited planets in the Galaxy than there are people on your single world. I, personally, rule three hundred trillion people, half of them of my own race. And yet I tell you that it would be an equal partnership."

"I don't get it. Why?"

"Because you came to me."

Crownwall shrugged. "So?"

THE Vegan reached up and engulfed the end of a drinking tube with his eating orifice. "You upstart Earthlings are a strange and a frightening race," he said. "Frightening to the Sunda, especially. When you showed up in the spaceways, it was decreed that you had to be stopped at once. There was even serious discussion of destroying Earth out of hand, while it is still possible.

"Your silly little planet was carefully examined at long range in a routine investigation just about fifty thousand years ago. There were at that time three different but similar racial strains of pulpy bipeds, numbering a total of perhaps a hundred thousand individuals. They showed many signs of an ability to reason, but a complete lack of civilization. While these creatures could by no means be classed among the intelligent races, there was a general expectation, which we reported to the Sunda, that they would some day come to be numbered among the Servants of the Emperor. So we let you alone, in order that you could develop in your own way, until you reached a high enough civilization to be useful – if you were going to.

"Intelligence is very rare in the Galaxy. In all, it has been found only fifteen times. The other races we have watched develop, and some we have actively assisted to develop. It took the quickest of them just under a million years. One such race we left uncontrolled too long – but no matter.

"You Earthlings, in defiance of all expectation and all reason, have exploded into space. You have developed in an incredibly short space of time. But even that isn't the most disconcerting item of your development. As an Earthling, you have heard of the details of the first expedition of your people into space, of course?"

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"*Heard* about it?" exclaimed Crownwall. "I was *on* it." He settled down comfortably on a couch, without requesting permission, and thought back to that first tremendous adventure; an adventure that had taken place little more than ten years before.

The *Star Seeker* had been built in space, about forty thousand kilometers above the Earth. It had been manned by a dozen adventurous people, captained by Crownwall, and had headed out on its ion drive until it was safely clear of the warping influence of planetary masses. Then, after several impatient days of careful study and calculation, the distorter drive had been activated, for the first time in Earth's history, and, for the twelve, the stars had winked out.

The men of Earth had decided that it should work in theory. They had built the drive — a small machine, as drives go — but they had never dared to try it, close to a planet. To do so, said their theory, would usually — seven point three four times out of 10 — destroy the ship, and everything in space for thousands of miles around, in a ravening burst of raw energy.

So the drive had been used for the first time without ever having been tested. And it had worked.

In less than a week's time, if time has any meaning under such circumstances, they had flickered back into normal space, in the vicinity of Alpha Centauri. They had quickly located a dozen planets, and one that looked enough like Earth to be its twin sister. They had headed for that planet confidently and unsuspectingly, using the ion drive.

Two weeks later, while they were still several planetary diameters from their destination, they had been shocked to find more than two score alien ships of space closing in on them — ships that were swifter and more maneuverable than their own. These ships had rapidly and competently englobed the *Star Seeker,* and had then tried to herd it away from the planet it had been heading toward.

ALTHOUGH caught by surprise, the Earthmen had acted swiftly. Crownwall recalled the discussion — the council of war, they had called it — and their unanimous decision. Although far within the dangerous influence of a planetary mass, they had again activated the distorter drive, and they had beaten the odds. On the distorter drive, they had returned to Earth as swiftly as they had departed. Earth had immediately prepared for war against her unknown enemy.

"Your reaction was savage," said Ggaran, his tentacles stiffening with shock at the memory. "You bloody-minded Earthlings must have been aware of the terrible danger."

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Ffallk rippled in agreement. "The action you took was too swift and too foolhardy to be believed. You knew that you could have destroyed not only yourself, but also all who live on that planet. You could also have wrecked the planet itself and the ships and those of my own race who manned them. We had tried to contact you, but since you had not developed subspace radio, we were of course not successful. Our englobement was just a routine quarantine. With your total lack of information about us, what you did was more than the height of folly. It was madness."

"Could we have done anything else that would have kept you from landing on Earth and taking us over?" asked Crownwall.

"Would that have been so bad?" said Ggaran. "We can't tolerate wild and warlike races running free and uncontrolled in the Galaxy. Once was enough for that."

"But what about my question? Was there any other way for us to stay free?"

"Well, no. But you didn't have enough information to realize that when you acted so precipitously. As a matter of fact, we didn't expect to have much trouble, even after your surprising action. Of course, it took us a little time to react. We located your planet quickly enough, and confirmed that you were a new race. But by the time we could try to set up communications and send ambassadors, you had already organized a not inconsiderable defense. Your drones blew up our unmanned ships as fast as we could send them down to your planet. And by the time we had organized properly for war against you, it was obvious that we could not conquer you. We could only destroy you."

"That old fool on Sunda, the Emperor, decided that we should blow you up, but by that time I had decided," said His Effulgence, "that you might be useful to me—that is, that we might be useful to each other. I traveled halfway across the Galaxy to meet him, to convince him that it would be sufficient just to quarantine you. When we had used your radio system to teach a few of you the Universal Galactic tongue, and had managed to get what you call the 'planet buster' down into the largest of your oceans, he figured we had done our job.

"With his usual lack of imagination, he felt sure that we were safe from you — after all, there was no way for you to get off the planet. Even if you could get down to the bottom of the ocean and tamper with the bomb, you would only succeed in setting it off, and that's what the Sunda had been in favor of in the first place.

"But I had different ideas. From what you had already done, I suspected it wouldn't be long before

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one of you amazing Earthlings would dream up some device or other, head out into space, and show up on our planet. So I've been waiting for you, and here you are."

"It was the thinking of a genius," murmured Ggaran.

"All right, then, genius, here I am," said Crownwall. "So what's the pitch?"

"Ggaran, you explain it to the Earthling," said His Effulgence.

GGARAN bowed. "The crustaceans on Sunda — the lobster-like creatures that rule the Galaxy — are usurpers. They have no rights to their position of power. Our race is much older than theirs. We were alone when we found the Sundans — a primitive tribe, grubbing in the mud at the edge of their shallow seas, unable even to reason. In those days we were desperately lonely. We needed companionship among the stars, and we helped them develop to the point where, in their inferior way, they were able to reason, almost as well as we, The People, can. And then they cheated us of our rightful place.

"The Emperor at Sunda is one of them. They provide sixty-eight of the hundred Viceroys; we provide only seventeen. It is a preposterous and intolerable situation.

"For more than two million years we have waited for the opportunity for revenge. And now that you have entered space, that opportunity is at hand."

"If you haven't been able to help yourselves for two million years," asked Crownwall, "how does the sight of me give you so much gumption all of a sudden?"

Ggaran's tentacles writhed, and he slavered in fury, but the clashing of his teeth subsided instantly at a soothing wave from His Effulgence.

"War in space is almost an impossibility," said the aged ruler. "We can destroy planets, of course, but with few exceptions, we cannot conquer them. I rule a total of seven races in my Sector. I rule them, but I don't let them intermingle. Each race settles on the planets that best suit it. Each of those planets is quite capable of defending itself from raids, or even large-scale assaults that would result in its capture and subjugation — just as your little Earth can defend itself.

"Naturally, each is vulnerable to economic blockade—trade provides a small but vital portion of the goods each planet uses. All that a world requires for a healthy and comfortable life cannot be provided from the resources of that single world alone, and that gives us a very considerable measure of control.

"And it is true that we can always exterminate any planet that refuses to obey the just and legal orders of its Viceroy. So we achieve

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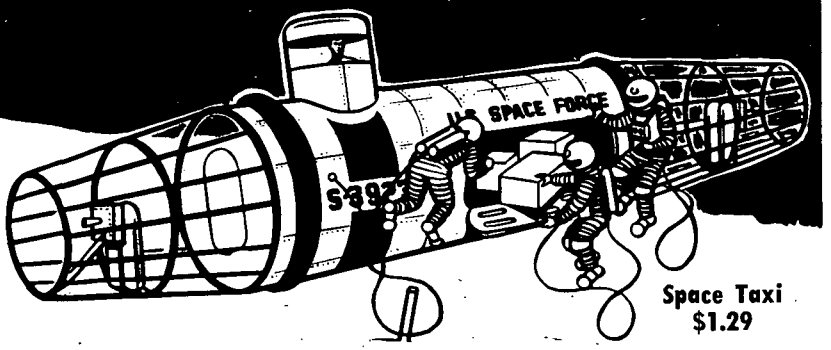

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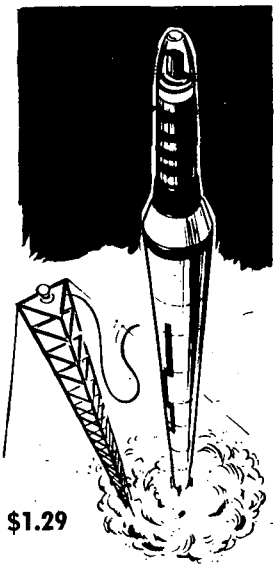

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a working balance in our Empire. We control it adequately, and we live in peace.

"The Sundans, for example, though they took the rule of the Empire that was rightfully ours away from us, through trickery, were unable to take over the Sectors we control. We are still powerful. And soon we will be all-powerfull. In company with you Earthlings, that is."

Crownwall nodded. "In other words, you think that we Earthmen can break up this two-million-year-old stalemate. You've got the idea that, with our help, you can conquer planets without the necessity of destroying them, and thereby take over number one spot from these Sunda friends of yours."

"Don't call those damn lobsters friends," growled Ggaran. He subsided at the Viceroy's gesture.

"Exactly," said His Effulgence to Crownwall. "You broke our blockade without any trouble. Our instruments didn't even wiggle when you landed here on my capital world. You can do the same on the worlds of the Sunda. Now, just tell us how you did it, and we're partners."

CROWNWALL lifted one eyebrow quizzically, but remained silent. He didn't expect his facial gesture to be interpreted correctly, but he assumed that his silence would be. He was correct.

"Of course," His Effugence said, "we will give you any assurances that your people may desire in order to feel safe, and we will guarantee them an equal share in the government of the Galaxy."

"Bunk," said Crownwall.

His Effulgence lifted a tentacle swiftly, before Ggaran, lunging angrily forward, could speak. "Then what do you want of us?"

"It seems to me that we need no wordy assurances from each other," said Crownwall, and he puffed a cigarette aglow. "We can arrange something a little more trustworthy, I believe. On your side, you have the power to destroy our only planet at any time. That is certainly adequate security for our own good behavior and sincerity.

"It is impossible for us of Earth to destroy all of your planets. As you have said, there are more planets that belong to you than there are human beings on Earth. But there is a way for us to be reasonably sure that you will behave yourselves. You will transfer to us, at once, a hundred of your planet-destroying bombs. That will be a sufficient supply to let us test some of them, to see that they are in good working order. Then, if you try any kind of doublecross, we will be able to use our own methods — which you cannot prevent — to send one of those bombs here to destroy this planet.

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"And if you try to move anywhere else, by your clumsy distorter drive, we can follow you, and destroy any planet you choose to land on. You would not get away from us. We can track you without any difficulty.

"We wouldn't use the bombs lightly, to be sure, because of what would happen to Earth. And don't think that blowing up our planet would save you, because we naturally wouldn't keep the bombs on Earth. How does that sound to you?"

"Ridiculous," snorted Ggaran. "Impossible."

After several minutes of silent consideration, "It is an excellent plan," said His Effulgence. "It is worthy of the thinking of The People ourselves. You Earthlings will make very satisfactory allies. What you request will be provided without delay. Meanwhile, I see no reason why we cannot proceed with our discussions."

"Nor do I," consented Crownwall. "But your stooge here doesn't seem very happy about it all."

His Effulgence wiggled his tentacles. "I'm afraid that Ggaran had expected to take what you Earthlings have to offer without giving anything in return. I never had any such ideas. I have not underestimated you, you see."

"That's nice," said Crownwall graciously.

"And now," Ggaran put in, "I think it's time for you to tell us something about how you get across light-years of space in a few hours, without leaving any traces for us to detect." He raised a tentacle to still Crownwall's immediate exclamation of protest. "Oh, nothing that would give us a chance to duplicate it — just enough to *indicate* how we can make use of it, along with you — enough to allow us to *begin* to make intelligent plans to beat the claws off the Master Race."

AFTER due consideration, Crownwall nodded. "I don't see why not. Well, then, let me tell you that we don't travel in space at all. That's why I didn't show up on any of your long-range detection instruments. Instead, we travel in time. Surely any race that has progressed as far as your own must know, at least theoretically, that time travel is entirely possible. After all, we knew it, and we haven't been around nearly as long as you have."

"We know about it," said Ffallk, "but we've always considered it useless — and very dangerous — knowledge."

"So have we, up until the time you planted that bomb on us. Anyone who tried to work any changes in his own past would be almost certain to end up finding himself never having been born. So we don't do any meddling. What we

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have discovered is a way not only of moving back into the past, but also of making our own choice of spatial references while we do it, and of changing our spatial anchor at will.

"For example, to reach this planet, I went back far enough, using Earth as the spatial referent, to move with Earth a little more than a third of the way around this spiral nebula that is our Galaxy. Then I shifted my frame of reference to that of the group of galaxies of which ours is such a distinguished member.

"Then of course, as I continued to move in time, the whole Galaxy moved spatially with reference to my own position. At the proper instant I shifted again, to the reference frame of this Galaxy itself. Then I was stationary in the Galaxy, and as I continued time traveling, your own mighty sun moved toward me as the Galaxy revolved. I chose a point where there was a time intersection of your planet's position and my own. When you got there, I just changed to the reference plane of this planet I'm on now, and then came on back with it to the present. So here I am. It was a long way around to cover a net distance of 26 light-years, but it was really very simple.

"And there's no danger of meeting myself, or getting into any anachronistic situation. As you probably know, theory shows that these are excluded times for me, as is the future — I can't stop in them."

"Are you sure that you haven't given us a little too much information for your own safety?" asked Ffallk softly.

"Not at all. We were enormously lucky to have learned how to control spatial reference frames ourselves. I doubt if you could do it in another two million years." Crownwall rose to his feet. "And now, Your Effulgence, I think it's about time I went back to my ship and drove it home to Earth to make my report, so we can pick up those bombs and start making arrangements."

"Excellent," said Ffallk. "I'd better escort you; my people don't like strangers much."

"I'd noticed that," Crownwall commented drily.

"Since this is a very important occasion, I think it best that we make this a Procession of Full Ceremony. It's a bother, but the proprieties have to be observed."

GGARAN stepped out into the broad corridor and whistled a shrill two-tone note, using both his speaking and his eating orifices. A cohort of troops, pikes at the ready and bows strapped to their backs, leaped forward and formed a double line leading from His Effulgence's sanctum to the main door. Down this lane, carried by twenty men, came a large sedan chair.

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"Protocol takes a lot of time," said His Effulgence somewhat sadly, "but it must be observed. At least, as Ambassador, you can ride with me in the sedan, instead of walking behind it, like Ggaran."

"I'm glad of that," said Crownwall. "Too bad Ggaran can't join us." He climbed into the chair beside Ffallk. The bearers trotted along at seven or eight kilometers an hour, carrying their contraption with absolute smoothness. Blasts from horns preceded them as they went.

When they passed through the huge entrance doors of the palace and started down the ramp toward the street, Crownwall was astonished to see nobody on the previously crowded streets, and mentioned it to Ffallk.

"When the Viceroy of the Seventy Suns," said the Viceroy of the Seventy Suns, "travels in state, no one but my own entourage is permitted to watch. And my guests, of course," he added, bowing slightly to Crownwall.

"Of course," agreed Crownwall, bowing back. "Kind of you, I'm sure. But what happens if somebody doesn't get the word, or doesn't hear your trumpeters, or something like that?"

Ggaran stepped forward, already panting slightly. "A man with knots in all of his ear stalks is in a very uncomfortable position," he explained. "Wait. Let me show you. Let us just suppose that that runner over there" — he gestured toward a soldier with a tentacle — "is a civilian who has been so unlucky as to remain on the street after His Effulgence's entourage arrived." He turned to one of the bowmen who ran beside the sedan chair, now strung and at the ready. "Show him!" he ordered peremptorily.

In one swift movement the bowman notched an arrow, drew and fired. The arrow hissed briefly, and then sliced smoothly through the soldier's throat.

"You see," said Ggaran complacently, "we have very little trouble with civilians who violate this particular tradition."

His Effulgence beckoned to the bowman to approach. "Your results were satisfactory," he said, "but your release was somewhat shaky. The next time you show such sloppy form, you will be given thirty lashes."

He leaned back on the cushion and spoke again to Crownwall. "That's the trouble with these requirements of civilization. The men of my immediate guard must practice with such things as pikes and bows and arrows, which they seldom get an opportunity to use. It would never do for them to use modern weapons on occasions of ceremony, of course."

"Of course," said Crownwall, then added, "It's too bad that you

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can't provide them with live targets a little more often." He stifled a shudder of distaste. "Tell me, Your Effulgence, does the Emperor's race — the Master Race — also enjoy the type of civilization you have just had demonstrated for me?"

"Oh, no. They are far too brutal, too morally degraded, to know anything of these finer points of etiquette and propriety. They are really an uncouth bunch. Why, do you know, I am certain that they would have had the bad taste to use an energy weapon to dispose of the victim in a case such as you just witnessed! They are really quite unfit to rule. They can scarcely be called civilized at all. But we will soon put a stop to all of that— your race and mine, of course."

"I sincerely hope so," said Crownwall.

REFRESHMENTS were served to His Effulgence and to Crownwall during the trip, without interrupting the smooth progress of the sedan. The soldiers of the cohort, the bearers and Ggaran continued to run — without food, drink or, except for Ggaran, evidence of fatigue.

After several hours of travel, following Crownwall's directions, the procession arrived at the copse in which he had concealed his small transportation machine. The machine, for spatial mobility, was equipped with the heavy and grossly inefficient anti-gravity field generator developed by Kowalsky. It occupied ten times the space of the temporal translation and coordination selection systems combined, but it had the great advantage of being almost indetectable in use. It emitted no mass or radiation.

After elaborate and lengthy farewells, Crownwall climbed into his machine and fell gently up until he was out of the atmosphere, before starting his enormous journey through time back to Earth. More quickly than it had taken him to reach his ship from the palace of His Effulgence, he was in the Council Chamber of the Confederation Government of Earth, making a full report on his trip to Vega.

When he had finished, the President sighed deeply. "Well," he said, "we gave you full plenipotentiary powers, so I suppose we'll have to stand behind your agreements — especially in view of the fact that we'll undoubtedly be blown into atoms if we don't. But from what you say, I'd rather be in bed with a rattler than have a treaty with a Vegan. They sound ungodly murderous to me. There are too many holes in that protection plan of yours. It's only a question of time before they'll find some way around it, and then — poof — we'll all be dust."

"Things may not be as bad as they seem," answered Crownwall

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complacently. "After I got back a few million years, I'm afraid I got a little careless and let my ship dip down into Vega III's atmosphere for a while. I was back so far that the Vegans hadn't appeared yet. Now, I didn't land — or *deliberately* kill anything — but I'd be mighty surprised if we didn't find a change or two. Before I came in here, I asked Marshall to take the ship out and check on things. He should be back with his report before long. Why don't we wait and see what he has to say?"

MARSHALL was excited when he was escorted into the Council Chamber. He bowed briefly to the President and began to speak rapidly.

"They're gone without trace — *all of them!*" he cried. "I went clear to Sunda and there's no sign of intelligent life anywhere! We're all alone now!"

"There, you see?" exclaimed Crownwall. "Our enemies are all gone!"

He looked around, glowing with victory, at the others at the table, then slowly quieted and sat down. He turned his head away from their accusing eyes.

"Alone," he said, and unconsciously repeated Marshall's words: "We're all alone now."

In silence, the others gathered their papers together and left the room, leaving Crownwall sitting at the table by himself. He shivered involuntarily, and then leaped to his feet to follow after them.

Loneliness, he found, was something that he couldn't face alone.

— L. J. STECHER, JR.

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By EDGAR PANGBORN

The Good Neighbors

You can't blame an alien for a little inconvenience — as long as he makes up for it!

Illustrated by WOOD

THE SHIP was sighted a few times, briefly and without a good fix. It was spherical, the estimated diameter about twenty-seven miles, and was in an orbit approximately 3400 miles from the surface of the Earth. No one observed the escape from it.

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The ship itself occasioned some excitement, but back there at the tattered end of the 20th century, what was one visiting spaceship more or less? Others had appeared before, and gone away discouraged — or just not bothering. 3-dimensional TV was coming out of the experimental stage. Soon anyone could have Dora the Doll or the Grandson of Tarzan smack in his own living-room. Besides, it was a hot summer.

The first knowledge of the escape came when the region of Seattle suffered an eclipse of the sun, which was not an eclipse but a near shadow, which was not a shadow but a thing. The darkness drifted out of the northern Pacific. It generated thunder without lightning and without rain. When it had moved eastward and the hot sun reappeared, wind followed, a moderate gale. The coast was battered by sudden high waves, then hushed in a bewilderment of fog.

Before that appearance, radar had gone crazy for an hour.

The atmosphere buzzed with aircraft. They went up in readiness to shoot, but after the first sighting reports only a few miles offshore, that order was vehemently canceled — someone in charge must have had a grain of sense. The thing was not a plane, rocket or missile. It was an animal.

If you shoot an animal that resembles an inflated gas-bag with wings, and the wingspread happens to be something over four miles tip to tip, and the carcass drops on a city — it's not nice for the city.

The Office of Continental Defense deplored the lack of precedent. But actually none was needed. You just don't drop four miles of dead or dying alien flesh on Seattle or any other part of a swarming homeland. You wait till it flies out over the ocean, if it will — the most commodious ocean in reach.

IT, or rather she, didn't go back over the Pacific, perhaps because of the prevailing westerlies. After the Seattle incident she climbed to a great altitude above the Rockies, apparently using an updraft with very little wing-motion. There was no means of calculating her weight, or mass, or buoyancy. Dead or injured, drift might have carried her anywhere within one or two hundred miles. Then she seemed to be following the line of the Platte and the Missouri. By the end of the day she was circling interminably over the huge complex of St. Louis, hopelessly crying.

She had a head, drawn back most of the time into the bloated mass of the body but thrusting forward now and then on a short neck not more than three hundred feet in length. When she did that the blunt turtle-like head could be observed,

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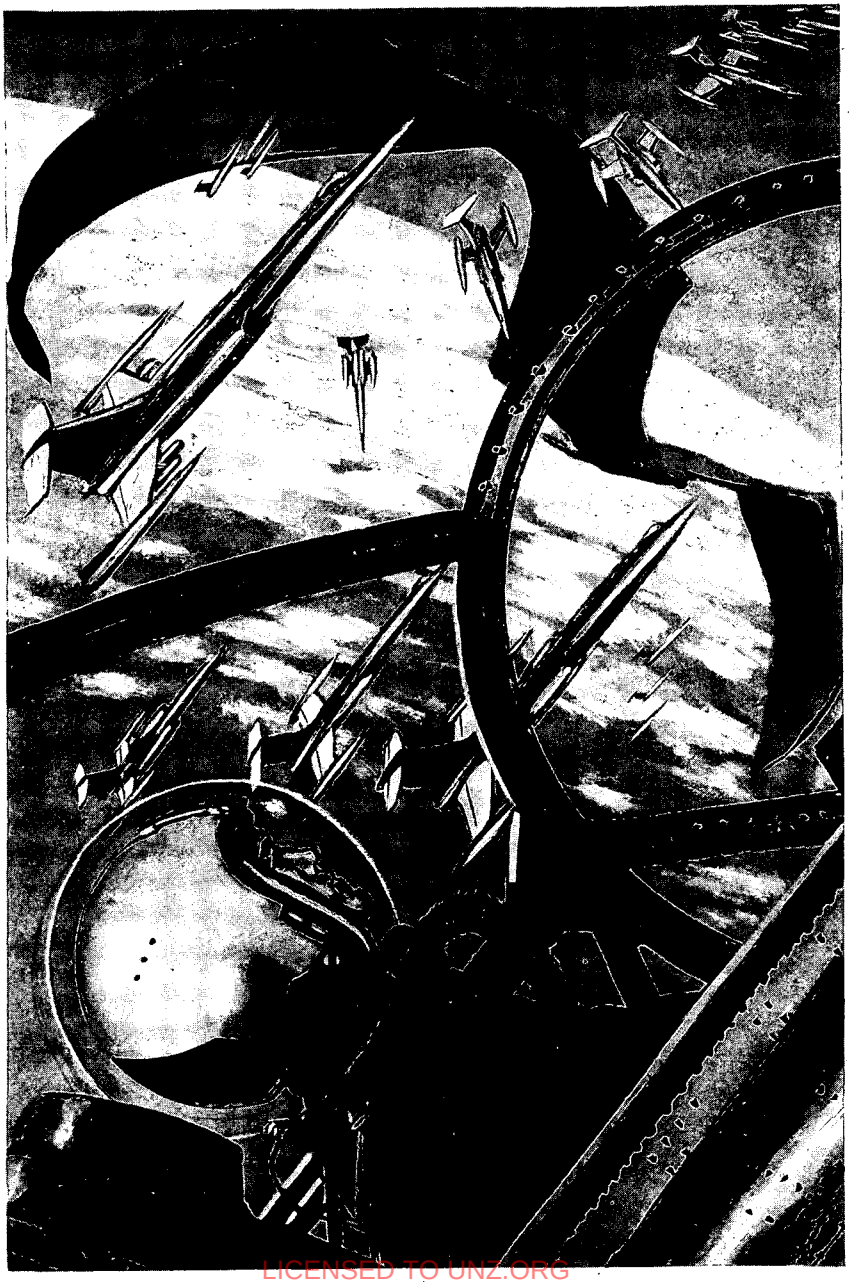

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the gaping, toothless, suffering mouth from which the thunder came, and the soft-shining purple eyes that searched the ground but found nothing answering her need. The skin-color was mud-brown with some dull iridescence and many peculiar marks resembling weals or blisters. Along the belly some observers saw half a mile of paired protuberances that looked like teats.

She was unquestionably the equivalent of a vertebrate. Two web-footed legs were drawn up close against the cigar-shaped body. The vast, rather narrow, inflated wings could not have been held or moved in flight without a strong internal skeleton and musculature. Theorists later argued that she must have come from a planet with a high proportion of water surface, a planet possibly larger than Earth though of about the same mass and with a similar atmosphere. She could rise in Earth's air. And before each thunderous lament she was seen to breathe.

It was assumed that immense air sacs within her body were inflated or partly inflated when she left the ship, possibly with some gas lighter than nitrogen. Since it was inconceivable that a vertebrate organism could have survived entry into atmosphere from an orbit 3400 miles up, it was necessary to believe that the ship had briefly descended, unobserved and by unknown means, probably on Earth's night-side. Later on the ship did descend as far as atmosphere, for a moment . . .

St. Louis was partly evacuated. There is no reliable estimate of the loss of life and property from panic and accident on the jammed roads and rail lines. 1500 dead, 7400 injured is the conservative figure.

AFTER a night and a day she abandoned that area, flying heavily eastward. The droning and swooping gnats of aircraft plainly distressed her. At first she had only tried to avoid them, but now and then during her eastward flight from St. Louis she made short desperate rushes against them, without skill or much sign of intelligence, screaming from a wide-open mouth that could have swallowed a four-engine bomber. Two aircraft were lost over Cincinnati, by collision with each other in trying to get out of her way. Pilots were then ordered to keep a distance of not less than ten miles until such time as she reached the Atlantic — if she did — when she could safely be shot down.

She studied Chicago for a day.

By that time Civil Defense was better prepared. About a million residents had already fled to open country before she came, and the loss of life was proportionately smaller. She moved on. We have no clue to the reason why great cities should have attracted her,

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though apparently they did. She was hungry perhaps, or seeking help, or merely drawn in animal curiosity by the endless motion of the cities and the strangeness. It has even been suggested that the life forms of her homeland — her masters—resembled humanity. She moved eastward, and religious organizations united to pray that she would come down on one of the lakes where she could safely be destroyed. She didn't.

She approached Pittsburgh, choked and screamed and flew high, and soared in weary circles over Buffalo for a day and a night. Some pilots who had followed the flight from the West Coast claimed that the vast lamentation of her voice was growing fainter and hoarser while she was drifting along the line of the Mohawk Valley. She turned south, following the Hudson at no great height. Sometimes she appeared to be choking, the labored inhalations harsh and prolonged, like a cloud in agony.

When she was over Westchester, headquarters tripled the swarm of interceptors and observation planes. Squadrons from Connecticut and southern New Jersey deployed to form a monstrous funnel, the small end before her, the large end pointing out to open sea. Heavy bombers closed in above, laying a smoke screen at 10,000 feet to discourage her from rising. The ground shook with the drone of jets, and with her crying.

Multitudes had abandoned the metropolitan area. Other multitudes trusted to the subways, to the narrow street canyons and to the strength of concrete and steel. Others climbed to a thousand high places and watched, trusting the laws of chance.

She passed over Manhattan in the evening — between 8:14 and 8:27 P.M., July 16, 1976 — at an altitude of about 2000 feet. She swerved away from the aircraft that blanketed Long Island and the Sound, swerved again as the southern group buzzed her instead of giving way. She made no attempt to rise into the sun-crimsoned terror of drifting smoke.

THE plan was intelligent. It should have worked, but for one fighter pilot who jumped the gun.

He said later that he himself couldn't understand what happened. It was court-martial testimony, but his reputation had been good. He was Bill Green — William Hammond Green — of New London, Connecticut, flying a one-man jet fighter, well aware of the strictest orders not to attack until the target had moved at least ten miles east of Sandy Hook. He said he certainly had no previous intention to violate orders. It was something that just happened in his mind. A sort of mental sneeze.

His squadron was approaching

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Rockaway, the flying creature about three miles ahead of him and half a mile down. He was aware of saying out loud to nobody: "Well, she's too big." Then he was darting out of formation, diving on her, giving her one rocket-burst and reeling off to the south at 840 MPH.

He never did locate or rejoin his squadron, but he made it somehow back to his home field. He climbed out of the cockpit, they say, and fell flat on his face.

It seems likely that his shot missed the animal's head and tore through some part of her left wing. She spun to the left, rose perhaps a thousand feet, facing the city, sideslipped, recovered herself and fought for altitude. She could not gain it. In the effort she collided with two of the following planes. One of them smashed into her right side behind the wing, the other flipped end over end across her back, like a swatted dragonfly. It dropped clear and made a mess on Bedloe's Island.

She too was falling, in a long slant, silent now but still living. After the impact her body thrashed desolately on the wreckage between Lexington and Seventh Avenues, her right wing churning, then only trailing, in the East River, her left wing a crumpled slowly deflating mass concealing Times Square, Herald Square and the garment district.

At the close of the struggle her neck extended, her turtle beak grasping the top of Radio City. She was still trying to pull herself up, as the buoyant gasses hissed and bubbled away through the gushing holes in her side. Radio City collapsed with her.

For a long while after the roar of descending rubble and her own roaring had ceased, there was no human noise except a melancholy thunder of the planes.

THE apology came early next morning.

The spaceship was observed to descend to the outer limits of atmosphere, very briefly. A capsule was released, with a parachute timed to open at 40,000 feet and come down quite neatly in Scarsdale. Parachute, capsule and timing device were of good workmanship.

The communication engraved on a plaque of metal (which still defies analysis) was a hasty job, the English slightly odd, with some evidence of an incomplete understanding of the situation. That the visitors were themselves aware of these deficiencies is indicated by the text of the message itself.

> Most sadly regret inexcusable escape of livestock. While petting same, one of our children monkied (sp?) with airlock. Will not happen again. Regret also imperfect grasp of language, learned through what you term

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Television etc. Animal not dangerous, but observe some accidental damage caused, therefore hasten to enclose reimbursement, having taken liberty of studying your highly ingenious methods of exchange. Hope same will be adequate, having estimated deplorable inconvenience to best of ability. Regret exceedingly impossibility of communicating further, as pressure of time and prior obligations forbids. Please accept heartfelt apologies and assurances of continuing esteem.

The reimbursement was in fact properly enclosed with the plaque, and may be seen by the public in the rotunda of the restoration of Radio City. Though technically counterfeit, it looks like perfectly good money, except that Mr. Lincoln is missing one of his wrinkles and the words "FIVE DOLLARS" are upside down.

— EDGAR PANGBORN

★ ★ ★ ★ ★

FORECAST

Never will we be counted among those who deplore the practice of waiting until all installments of a serial are on hand before going on a reading spree. But in the case of Galaxy serials, who do deplore — deplore, nothing; we think it's self-theft to read the synopsis of the first installment and then the whole second, as if something as rich and strong and sensitive as the installment in this issue could be more than dehydrated and packed into a skimpy carton of a synopsis. In other words, DRUNKARD'S WALK by Frederik Pohl consists of only two installments, as we promised our serials would be — but you're missing a lot if you are one of the autothieves mentioned above.

You know, having 196 pages to sprawl around in—more pages than any other magazine in this field, regardless of price, and now maybe you understand what looked like funny arithmetic at the time; we knew what our esteemed rivals were going to do, how much it would cost you per page, and how much less each page of Galaxy came to; we just didn't figure they would take so long to make the change. To get back to that interrupted thought, having 196 pages to sprawl around in, we put our fingers in our ears and leaped into a Forecast with an installment of a serial and two novelets.

So — two more novelets are herewith predicted for the next issue:

SORDMAN THE PROTECTOR by Tom Purdom, the story of the most powerful man in the world, who can make anybody do — anything.

MIND PARTNER by Christopher Anvil, whose hero has plenty of reason to worry. Why is he being offered a reward that couldn't be bigger — to break up a dope ring that couldn't be tinier?

Short stories, Willy Ley on HOW TO SLAY DRAGONS, and our usual unusual features. Be on hand, won't you?

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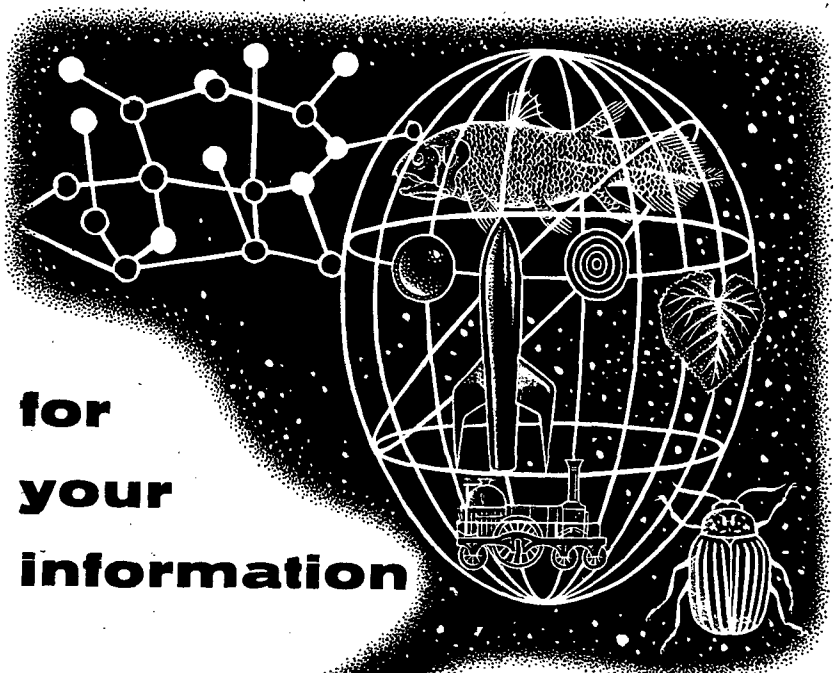

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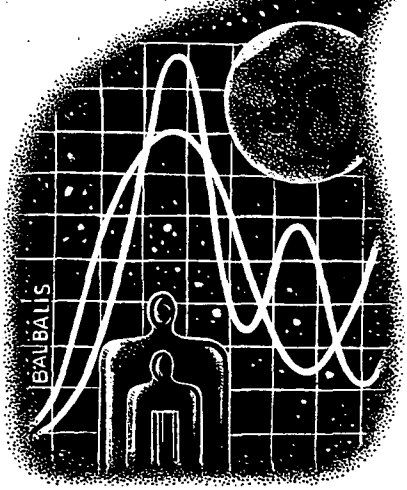

BY WILLY LEY

FUELS GALORE

THIS issue's column is once more devoted exclusively to questions from readers. This also applies to this opening section, which unfortunately cannot be credited to individual readers, for questions about rocket fuels were the most frequent item during the last few weeks. They ranged from the simple but pretty unanswerable "Please tell me what they put into solid fuels" to a rather long and confused letter from a lady in New Jersey who

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said all kinds of things that simply aren't so.

To begin with, she "knew" that the Russian successes in the space field were all due to the use of solid fuels, while our explosions at Cape Canaveral occurred because of liquid fuels. She then went on to say that this solid fuel was indubitably a German invention and that we could probably find about it if we read all the patents taken out by the German company of *I. G. Farbenindustrie* — I may add that she misspelled the name. Since this situation is unbearable, she was writing to her senator, and she urged me to write to the President, asking him to order our chemists to go ahead and invent a solid fuel.

I don't know what her senator said to all this, but I tried to straighten her out as best I could in a letter: namely, that the Russian space rockets burn refined kerosene with liquid oxygen, as suggested by Konstantin Eduardovitch Ziolkovsky in 1903, and that they use solid-fuel rockets only, as far as is known, to boost their smaller high-altitude research rockets off the launching pad, but that these rockets, too, are liquid-fuel devices.

I also wrote that our chemists probably learned all *I. G. Farben* patents by heart as a matter of routine — and that we do have several companies which are in the business of concocting solid rocket fuels — without requiring a special order from the President.

LESS confused letters dealt with the question of why solid fuels are "superior" — "They must be or else the armed forces would not specify that they want solid-fuel rockets from now on" — and just what is meant by the term "families of fuels."

Though I have touched on some of these questions in the past, it is necessary to go over the whole problem in a more systematic manner to explain what is really involved.

What 99 per cent of the people who worry about the "secret" of solid fuels — Russian, German, Japanese, Yugoslav or what have you — do not seem to realize is that *all* rockets started as solid-fuel rockets. When the English fireworks maker of the 17th century or the naval architect of the 18th century, or the German gunnery master of the same period retired to his laboratory to make some rockets, he concocted a mixture of 60 per cent saltpeter, 25 per cent charcoal and 15 per cent sulfur. The proportions varied by one or two per cent from case to case, and there were special trade secrets as to how the saltpeter should be refined, how to obtain pure sulfur, and which kind of wood to burn into charcoal. But

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the recipe was the one just given. It worked. And it was the only recipe there was.

In the language of modern rocket engineering, the men made a "mixed composite" which had a number of advantages. It was simple, the ingredients were not expensive, and it was reasonably safe to make. That the rockets had a tendency to deteriorate in storage was another problem. And that they could not be made very large was still another one.

It was due to these two drawbacks of poor storability and restricted size that inventors scouted around for other possibilities. Hermann Ganswindt in Germany (around 1880) and later Dr. Robert H. Goddard in the United States (1913 and following years) thought about the possibility of a machinegun-like firing mechanism, using solid-fuel cartridges. Ziolkovsky (1898 or 1903, depending on whether you have the year of writing or the year of publication of his first treatise in mind) wondered about the possibility of using liquid fuels. Goddard (patent of 1914) and Hermann Oberth (publication of 1923) followed suit.

Goddard was the first to actually experiment with liquid fuels. His first test-stand run took place on November 1, 1923, his first free flight on March 16, 1926. In both cases, gasoline and liquid oxygen were used. The first liquid-fuel rocket in Europe rose on March 14, 1931; it had been built by Johannes Winkler and used liquid methane (CH_4) and liquid oxygen. The first Russian liquid-fuel rocket (built by Blagonravov, fuels probably kerosene and liquid oxygen) rose sometime in 1932.

Of course each of these flights had been preceded by test-stand runs, most of which took place in spring and early summer 1930.

AT about the same time, an inventor tried his hand on a liquid-fuel rocket motor in which the oxidizer was *not* liquid oxygen. He was Friedrich Wilhelm Sander who, sometime during 1929, demonstrated a test-stand run with nitric acid as an oxidizer and an unnamed substance (probably fuel oil) as the fuel proper.

Sander's accomplishments are a difficult job for the historian for a very simple reason. Friedrich Wilhelm Sander was one of the very few people who, at that time, were in the rocket *business;* he made his living manufacturing rockets for signaling purposes, line-throwing lifesaving rockets and so forth. They were all still based on the old blackpowder formula mentioned, but he tried to make new inventions in his field, preferably before any competitors would come up with the same idea. Sander, as he made perfectly clear

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in a letter to me, was not interested in furthering science. He wanted to enlarge his business.

While this is understandable, it leaves a few gaps in the history of the whole. One cannot even ask him to tell what he did and when he did it, because he disappeared early in the Second World War (rumor has it that he was arrested by the Gestapo and put into a concentration camp) and must be presumed dead.

My reason for stressing this gap in our historical knowledge is that Sander may have been the first to experiment with a new solid fuel too. There is, as has to be explained first, a "family" of solid rocket fuels which is called the "double-base powders." Their original inventor is Alfred Nobel and the invention itself is based on the fact that guncotton and nitroglycerin can be kneaded together into a jelly-like substance. This substance was, for many years, the most powerful explosive known and was sold under the name of "blasting gelatin" and half a dozen other trade names. Because each of the two ingredients is an explosive itself, the term "double-base explosive" was natural.

Later, Alfred Nobel developed this original "double-base" explosive into safer solid double-base powders which received trade names like "ballistite." It goes without saying that the "ballistite" of today is not the "ballistite" that Alfred Nobel and his chemists put together. But the one is the offspring of the other. In fact, most of the "smokeless powders" in rifle cartridges are offsprings of the double-base experiment too.

What I don't know is who was the first to try a double-base smokeless powder for rocket propulsion. It is known that Nobel himself experimented with rockets on and off, but the scanty descriptions that exist stress that his rockets carried a payload of nitroglycerin which produced a blinding flash even in daytime and a very sharp report that could be heard for several miles. Whether Nobel used his new substances for propulsion or whether he stuck to the old formula is something I would like to learn.

GODDARD, at the time of the First World War, did make laboratory experiments with smokeless powders (commercial types) in order to measure their exhaust velocities, but to the best of my knowledge he never produced a smokeless-powder rocket charge of any duration. It is logical that he didn't, because he had his machinegun-type firing mechanism in mind.

It is, therefore, very likely that Sander was the first to use double-base powders for rocket propul-

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sion (unless Nobel did), but he did not arrive at a commercial product. This being his goal, he did not talk about his experiments. I know about it only because he once permitted Max Valier to watch a series of test-stand runs, and Valier told me about them — just a few months before his own death, when a liquid-fuel rocket motor blew up on him.

Naturally Sander, though probably the first, was not the only one to think of Nobel's double-base powders for rocket propulsion. The British Military Establishment did. So did the Ordnance Corps of the U.S. Army. So did the *Waffenprüfamt* (Weapons Research Office) of the German Army. And when the Second World War came, everybody blossomed out sooner or later with double-base rockets, propelled by sticks of "cordite" or "ballistite."

Just as the old "mixed composite" had a standard composition from which the individual manufacturers did not deviate much, the new double-base sticks also had a standard. Half of them was nitroglycerin, between 40 and 42 per cent was guncotton, while the remainder were additives with special functions. Main additive was diethyl-diphenyl urea, which was a gelatinizer. Carbon black was another additive, after it had been found out that an optically opaque charge burned more reliably than a translucent one.

Now the double-base charges were superior to the old black-powder in not deteriorating in storage — or at least much more slowly, for these things are relative too — in being more powerful and safer all around. But they still could not be very large. It was necessary, for the bigger types of war rockets, to put several "sticks" into the rocket.

The breakthrough to what is claimed to be a theoretically unlimited size (personally I am still sitting back waiting to see whether limits of some kind will not show up) did not come until after the war. Of course secrecy still prevails here. But the secret seems to be mainly in the manufacturing process, not so much in the composition. The composition, in fact, is familiar.

There is a cast double-base type (40 per cent nitroglycerin, 40 per cent nitrocellulose, 20 per cent additives). There is a mixed composite with ammonium nitrate as the oxidizer. And there are several which are actually synthetic rubber, with an oxidizer kneaded in.

So we do have solid fuels galore.

WHAT prompted most of the questions from readers were newspaper stories dealing with specific items as, for example, that the Army's liquid-fuel Redstone

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rocket is to be replaced by the solid-fuel Pershing, and that the liquid-fuel Atlas and Titan are eventually to be replaced by the solid-fuel Minuteman.

The Minuteman is to be a three-stage rocket with the warhead in the third stage. The third stage, used by itself, would be a 200-mile rocket. The third stage on top of the second stage would be a 1500-mile rocket. All three stages together would add up to a 5000-mile rocket.

Well, newspaper readers ask somewhat belligerently, if they are going to replace both the Redstone and the Atlas by solid-fuel rockets, doesn't that prove solid fuels are better?

The answer, and this is really the key to the whole discussion, is that it does *not* prove anything like that. The choice is not one of "superiority" as the layman thinks of the term, but one of superior convenience.

A solid-fuel rocket is much like a cartridge: once it has been made, it can be used at almost any time. A liquid-fuel rocket is more comparable to an airplane: it needs servicing, fueling and so forth. Naturally, for military purposes, the simpler version is the better one — not because it is inherently "better" but because it is more convenient in every respect.

Actually the best solid fuels of today are still somewhat less powerful than the customary liquid fuels. This is admittedly a transitory talking point, for next week the fuel chemists may come up with a solid which is somewhat more powerful than the liquids in use. And whether there really is no limit to the size of solid-fuel units is something that still has to be proved, whereas we know right now that there is no limit to the size of a liquid-fuel unit, provided you have the skill and experience to build it.

The trend toward solids for miltary purposes is due to ease of handling and storage. But even this trend is not unanimous.

Recently the Air Force made the interesting discovery that a certain solid-fuel missile has to be replaced by a liquid-fuel missile. It is a missile which is carried "externally" under the wings of a fighter or bomber. Carrying rockets and missiles externally is old, of course. It always worked fine and was expected to work fine for all time to come.

But one point had been overlooked. If the plane which carries the missile cruises at 400 mph, there is no problem. If it cruises at supersonic speeds, one factor changes — the missile is heated up. Being heated changes the performance of a rocket charge, but *especially* of a solid-fuel charge. Liquids are far less sensitive in that respect, and for this reason a

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solid-fuel job is now being replaced by a liquid-fuel device.

And the liquid-fuel engineers have gone over to a counterattack with new liquid fuels which allow a missile to be fueled and then stored as a sealed unit, just like a solid-fuel missile.

ASIDE from these special items, the military trend is in the direction of the solid-fuel missile, essentially for reasons of convenience.

This being so, what can be said in favor of the liquids?

Technological guessing is difficult, but it seems likely that the liquids will continue to be somewhat more powerful. If a new solid catches up with the current liquids in power, the new liquids will probably jump ahead again.

The liquid-fuel units are much larger now, and are likely to stay ahead in this respect too. Every once in a while somebody in Washington makes a news item by declaring that missiles should be smaller, because the warheads are growing smaller without being diminished in power. Well, yes — if the warhead can be smaller, and the rocket can be smaller and therefore easier to handle, and possibly even cheaper, this is fine for military purposes. But for space activities, things have to grow bigger, and bigger, and then bigger some more.

Finally, a solid-fuel charge will do what it has been designed to do, but nothing else. The thrust of a liquid-fuel rocket can be adjusted in various ways, and when it comes to manned flight, that is what is needed.

Being at the end of my answer to many different letters, I wonder whether I've made that answer clear.

The point is that one type of fuel is not inherently and in all ways "better" than all others. A certain type of fuel, or even a specific fuel, is likely to be better for a specific purpose. And as long as you have several sets of purposes, you'll need several kinds of fuels.

DECREASE OF GRAVITY WITH ALTITUDE

IT is pretty well known to everybody by now that a satellite in orbit does not have any weight in the ordinary sense of the word. It does have — a point which apparently cannot be emphasized often enough — mass and inertia, but it does not have any "weight." Almost inevitably this brings up the question of what it would weigh at a certain altitude if it did have weight — if, say, it rested on top of a tower of that height.

The general rule is, of course, the one given by Sir Isaac Newton. If the force of gravity is a

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given amount one planetary radius from the center (which means at the surface of the planet), then it is one-quarter of that value at a distance of two radii from the center (or one radius from the surfact), one-ninth at a distance of three radii from the center, and so forth.

But what would the weight be at lower altitudes? Well, at the surface, the gravitational acceleration of the planet Earth is 32.18 feet per second squared. At a height of 3 miles this figure is still 32.15 ft. p. sec. squared. At 5 miles it has reached the value of 32.0 ft. p. sec. squared; at 25 miles it is still 31.8 ft. p. sec. squared. At 55 miles it is down to 31.4 ft. p. sec. squared and at 125 miles to 30.2.

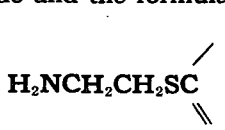
But 125 miles is not a satellite altitude; an artificial satellite placed in an orbit 125 miles from the ground would not last very long. The lowest feasible satellite altitude would be around 250 miles. The value for "g" at that altitude would still be 28.5 feet per second squared, only about 10 per cent less than at the surface.

ANY QUESTIONS?

Recently, in a radio broadcast, a reference to "anti-radiation drugs" was made. What are these drugs and how do they work?

Robert S. Stanley
Jacksonville, Florida

Yes, there some drugs which do help the body to overcome radiation damage. The one on which most work has been done has the chemical name of S- (2-aminoethyl) isothiuronium hydrobromide and the formula.



and even chemists refer to it by the shortened name of AET. What AET can do has been shown in an experiment with a group of mice. One-half of that group was not treated and subjected to 625 roentgens of radiation. Half of the untreated mice died within one month after radiation was applied. The other half of the original group was treated with AET and it took 1300 roentgens to kill off half of the treated mice. You might say that the resist to radiation was just about doubled.

An important point to remember is that AET is not a pill which will "cure" radiation damage. If such a pill is possible, we haven't found it yet. The AET must be present in the body before the exposure to radiation occurs, for it is a protecting chemical. It can be injected into a vein or simply swallowed. The method of introducing it into the body does not seem to make any difference.

The fact that such a protecting

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chemical has been found makes it probable that others exist and can be made; presumably there will be some which are far superior to AET. The search for such other chemicals is somewhat handicapped at the present moment by the fact that nobody knows how AET works.

The majority opinion among the researchers has it that the harmful effects of radiation are caused indirectly, via a chemical detour. The radiation is believed to produce so-called "free radicals," chemicals which are highly active and for this reason do not exist for any length of time since they quickly combine with whatever is on hand. The "raw material" from which the free radicals in question are formed is the water of the body tissues, but some researchers feel that the presence of free oxygen increases the formation of free radicals. These researchers believe, therefore, that a lowering of the oxygen content of the tissues will be a partial answer.

Other researchers shoved the question of whether free oxygen plays such a role somewhat aside in saying that AET obviously acts as a trap for free radicals and makes them harmless, no matter how they were formed. The protection of the living cell by AET molecules would consist of "using up" the free radicals before they can attack the "living compounds" of the cell.

Still another group of researchers point out that if this were the whole story, any chemical which "uses up" free radicals should be an "anti-radiation drug." But quite a number of compounds are known that do use up free radicals, but that do not produce any radiation protection. These researchers think that the AET, modified by body chemistry, combines with the sensitive substances of the cell instead, forming substances which free radicals cannot attack. These researchers think that the body gets rid of the free radicals through other reactions and that afterward the combination of modified AET and cell constituents somehow falls apart so that the living cell can resume its functions.

Of course additional protective chemicals may be found even if it it not clear just how they work. But the search for such chemicals would be eased if it could be established just how they do, or should, work.

Please tell me whether any man has yet reached an altitude of more than 100,000 feet and how different space would be from whatever altitude has been reached.

William J. Gordon
Chicago, Ill.

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The highest flight mentioned in professional literature is one by the late Captain Iven C. Kincheloe who took the rocket-propelled research airplane X-2 to a height of 126,000 feet in August 1954 and landed it safely after what he described as an uneventful flight.

Except for the air resistance experienced by a fast-moving body, conditions at 126,000 feet do not differ noticeably from free-space conditions. At about 100,000 feet, 99 per cent of the Earth's atmosphere is below the pilot; hence his cabin has to protect him as thoroughly as the cabin of a spaceship would.

One difference I can think of would be conditions of illumination. The contrast between illuminated objects and lightless background should be more pronounced and the space pilot would suffer if his eyes were not protected by light filters. This condition, however, would prevail to a large extent at 126,000 feet too. It is not stressed in the report on the flight, presumably because the time at the peak was so short.

A friend of mine says that "megabuck" means a million dollars. Is this true? Please answer in your column. I don't want to sign my name in case my friend was only joking.

Friend, you could have signed your name, because "megabuck" *does* mean a million dollars. But that does not mean that the term "mega" means "million." The word is an adaptation of a number of new terms introduced by the National Bureau of Standards denoting large and small figures so that they can be (A) easily pronounced and (B) avoid the confusion which always attends large numbers because the American method of naming large numbers unfortunately differs from the European system. For example, the figure 1,000,000,000 is usually called a billion in America; in Europe, it is called a milliard, and the figure 1,000,000,000,000 is named billion.

Readers of this column may have noticed that I never use the word billion for this reason, but instead use 1000 million. Now the National Bureau of Standards has picked the terms "tera," "giga" and "mega" for large figures. The word "tera" comes from Greek *terastios* meaning "monstrous." "Giga" is from Greek *gigas* which means either a giant or just "mighty." "Mega" is from Greek *megas*, meaning "large." The names denote:

Tera = 1,000,000,000,000 (European billion or American trillion); *Giga* = 1,000,000,000; *Mega* = 1,000,000. Then comes *Kilo* = 1000; *Hecto* = 100 and *Deka* = 10.

Below the decimal point you

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have *Deci* = 0.1; *Centi* = 0.01; *Milli* = 0.001; *Micro* = 0.000,001 (or 1 millionth) and, as new additions, *Nano* = 0.000,000,001 and *Pico* = 0.000,000,000,001.

Is there a substance called gadolinium"? If so, what is it and what is it used for? I tried to look it up in a book on chemistry which my father has, but I could not find it. I presume it is quite rare and not listed for that reason.

Dolores Goldstein
Alameda Blvd.
Burbank, Calif.

If your father's chemistry text is more than a dozen years old, gadolinium may not have rated a separate paragraph because it was then mostly a chemical curiosity. But you should have found it in the periodical table of the elements. Gadolinium is element No. 64, one of the rare-earth elements, hence a metal. It is named in honor of Professor Johan Gadolin of the University of Abo in Finland. Gadolin, who died in 1852, discovered a substance he named "yttria" because it came from Ytterby in Sweden. Yttria later turned out to be a complex mixture of compounds of many of the rare-earth elements of which gadolinium is one.

In spite of the name attached to the whole group, it is not particularly rare; it was just difficult to isolate. The pure metal looks about like silver. The use of gadolinium as moderator rods in atomic piles was discussed several years ago, but I can't say whether it is actually so used now, nor do I know of any other uses.

THE HAIRS ON YOUR GIRL'S HEAD

ONLY about a week has gone by between the appearance of the February issue on the newsstands and the writing of this column, so there is very little mail as yet about the problem of the girls in the same town with the same number of hairs on their heads.

I have, in fact, exactly two pieces of mail, both of them postcards. One states that it could not possibly be the case. The other remarks philosophically that one should not deny that anything is possible, but that this certainly is not probable.

Well, this is one of the cases where "common sense" and mathematics are at odds with each other, and in these cases mathematics always wins.

Let's repeat the problem: the town has 220,000 inhabitants or more. Without going into fractional percentages of statistics, this means that 110,000 inhabitants are female. Subtracting 25 per cent of that number as being female children, we get an adult

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female population of 82,500.

We'll postulate (in the hope of being mistaken) that one of these women suffers from an extreme case of what dermatologists call *alopecia totalis,* which means in plain English she does not have a single hair on her head. The number of her hairs therefore is *zero.* This is the one possible extreme. She can't have any less.

Now what is the maximum number possible? How many hairs are there in a really luxuriant dense-jungle-type head of hair? The estimates of the expert vary a little; the figure usually runs between 50,000 and 60,000, though some are willing to concede 80,000 as the possible maximum. Hence the girls in that town can have between zero and 80,000 hairs on their heads. Since there are more than 80,000 girls, not only one or two but several thousand will have the same number of hairs on their heads at a given moment.

— WILLY LEY

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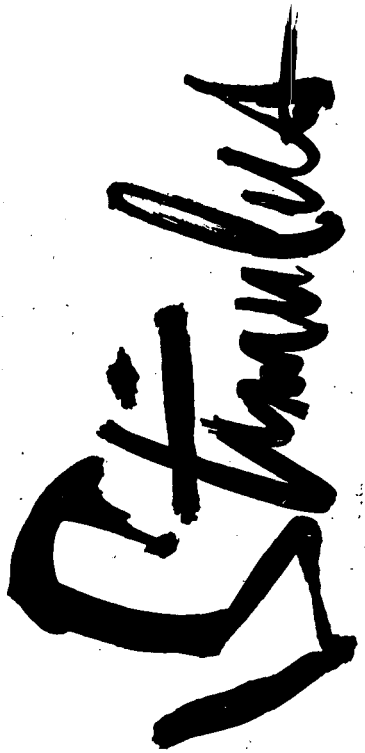

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THE DOPE on Mars

By JACK SHARKEY

Somebody had to get the human angle on this trip . . . but what was humane about sending me?

Illustrated by WOOD

MY agent was the one who got me the job of going along to write up the first trip to Mars. He was always getting me things like that — appearances on TV shows, or mentions in writers' magazines. If he didn't sell much of my stuff, at least he sold *me*.

"It'll be the biggest break a writer ever got," he told me, two days before blastoff. "Oh, sure there'll be scientific reports on the trip, but the public doesn't want

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them; they want the *human* slant on things."

"But, Louie," I said weakly, "I'll probably be locked up for the whole trip. If there are fights or accidents, they won't tell *me* about them."

"Nonsense," said Louie, sipping carefully at a paper cup of scalding coffee. "It'll be just like the public going along vicariously. They'll *identify* with you."

"But, Louie," I said, wiping the dampness from my palms on the knees of my trousers as I sat there, "how'll I go about it? A story? An article? A *you-are-there* type of report? What?"

Louie shrugged. "So keep a diary. It'll be more intimate, like."

"But what if nothing happens?" I insisted hopelessly.

Louie smiled. "So you fake it."

I got up from the chair in his office and stepped to the door. "That's dishonest," I pointed out.

"Creative is the word," Louie said.

So I went on the first trip to Mars. And I kept a diary. This is it. And it is honest. Honest it is.

October 1, 1960

THEY PICKED the launching date from the March, 1959, New York *Times*, which stated that this was the most likely time for launching. Trip time is supposed to take 260 days (that's one way), so we're aimed toward where Mars will be (had *better* be, or else).

There are five of us on board. A pilot, co-pilot, navigator and biochemist. And, of course, me. I've met all but the pilot (he's very busy today), and they seem friendly enough.

Dwight Kroger, the biochemist, is rather old to take the "rigors of the journey," as he puts it, but the government had a choice between sending a green scientist who could stand the trip or an accomplished man who would probably not survive, so they picked Kroger. We've blasted off, though, and he's still with us. He looks a damn sight better than I feel. He's kind of balding, and very iron-gray-haired and skinny, but his skin is tan as an Indian's, and right now he's telling jokes in the washroom with the co-pilot.

Jones (that's the co-pilot; I didn't quite catch his first name) is scarlet-faced, barrel-chested and gives the general appearance of belonging under the spreading chestnut tree, not in a metal bullet flinging itself out into airless space. Come to think of it, who *does* belong where we are?

The navigator's name is Lloyd Streeter, but I haven't seen his face yet. He has a little cubicle behind the pilot's compartment, with all kinds of maps and rulers and things. He keeps bent low over a welded to the wall (they call it the bulkhead, for some reason or other)

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table, scratching away with a ballpoint pen on the maps, and now and then calling numbers over a microphone to the pilot. His hair is red and curly, and he looks as though he'd be tall if he ever gets to stand up. There are freckles on the backs of his hands, so I think he's probably got them on his face, too. So far, all he's said is, "Scram, I'm busy."

Kroger tells me that the pilot's name is Patrick Desmond, but that I can call him Pat when I get to know him better. So far, he's still Captain Desmond to me. I haven't the vaguest idea what he looks like. He was already on board when I got here, with my typewriter and ream of paper, so we didn't meet.

My compartment is small but clean. I mean clean now. It wasn't during blastoff. The inertial gravities didn't bother me so much as the gyroscopic spin they put on the ship so we have a sort of artificial gravity to hold us against the curved floor. It's that constant whirly feeling that gets me. I get sick on merry-go-rounds, too.

They're having pork for dinner today. Not me.

October 2, 1960

FEELING MUCH better today. Kroger gave me a box of Dramamine pills. He says they'll help my stomach. So far, so good.

Lloyd came by, also. "You play chess?" he asked.

"A little," I admitted.

"How about a game sometime?"

"Sure," I said. "Do you have a board?"

He didn't.

Lloyd went away then, but the interview wasn't wasted. I learned that he *is* tall and *does* have a freckled face. Maybe we can build a chessboard. With my paper and his ballpoint pen and ruler, it should be easy. Don't know what we'll use for pieces, though.

Jones (I still haven't learned his first name) has been up with the pilot all day. He passed my room on the way to the galley (the kitchen) for a cup of dark brown coffee (they like it thick) and told me that we were almost past the Moon. I asked to look, but he said not yet; the instrument panel is Top Secret. They'd have to cover it so I could look out the viewing screen, and they still need it for steering or something.

I still haven't met the pilot.

October 3, 1960

WELL, I'VE met the pilot. He is kind of squat, with a vulturish neck and close-set jet-black eyes that make him look rather mean, but he was pleasant enough, and said I could call him Pat. I still don't know Jones' first name, though Pat spoke to him, and it sounded like Flants. That can't be right.

Also, I am one of the first five men in the history of the world to

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see the opposite side of the Moon, with a bluish blurred crescent beyond it that Pat said was the Earth. The back of the Moon isn't much different from the front. As to the space in front of the ship, well, it's all black with white dots in it, and none of the dots move, except in a circle that Pat says is a "torque" result from the gyroscopic spin we're in. Actually, he explained to me, the screen is supposed to keep the image of space locked into place no matter how much we spin. But there's some kind of a "drag." I told him I hoped it didn't mean we'd land on Mars upside down. He just stared at me.

I can't say I was too impressed with that 16 x 19 view of outer space. It's been done much better in the movies. There's just no awesomeness to it, no sense of depth or immensity. It's as impressive as a piece of velvet with salt sprinkled on it.

Lloyd and I made a chessboard out of a carton. Right now we're using buttons for men. He's one of these fast players who don't stop and think out their moves. And so far I haven't won a game.

It looks like a long trip.

October 4, 1960

I WON a game. Lloyd mistook my queen-button for my bishop-button and left his king in jeopardy, and I checkmated him next move. He said chess was a waste of time and he had important work to do and he went away.

I went to the galley for coffee and had a talk about moss with Kroger. He said there was a good chance of lichen on Mars, and I misunderstood and said, "A good chance of liking *what* on Mars?" and Kroger finished his coffee and went up front.

When I got back to my compartment, Lloyd had taken away the chessboard and all his buttons. He told me later he needed it to back up a star map.

Pat slept mostly all day in his compartment, and Jones sat and watched the screen revolve. There wasn't much to do, so I wrote a poem, sort of.

Mary, Mary, quite contrary,
How does your garden grow?
With Martian rime, Venusian slime,
And a radioactive hoe.

I showed it to Kroger. He says it may prove to be environmentally accurate, but that I should stick to prose.

October 5, 1960

LEARNED JONES' first name. He wrote something in the ship's log, and I saw his signature. His name is Fleance, like in "Macbeth." He prefers to be called Jones. Pat uses his first name as a gag. Some fun.

And only 255 days to go.

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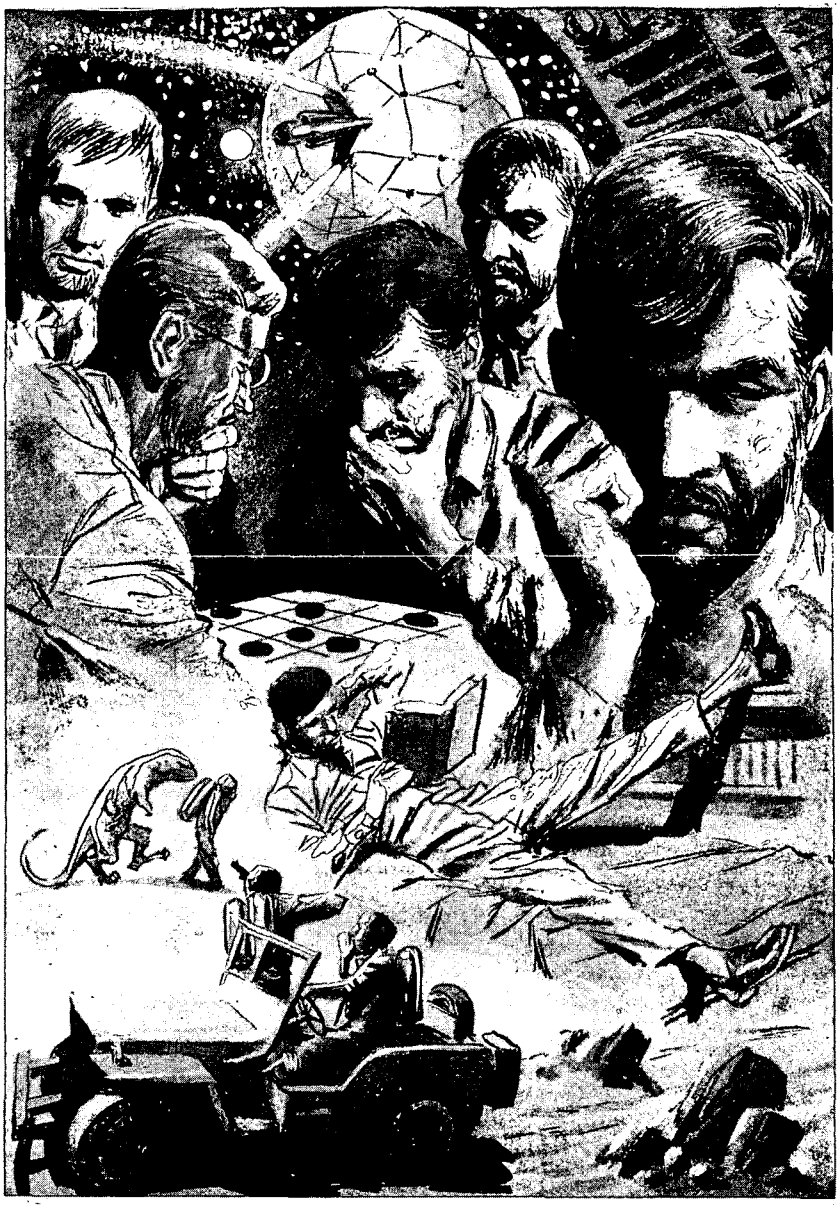

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April 1, 1961

I'VE SKIPPED over the last 177 days or so, because there's nothing much new. I brought some books with me on the trip, books that I'd always meant to read and never had the time. So now I know all about *Vanity Fair, Pride and Prejudice, War and Peace, Gone with the Wind,* and *Babbitt.*

They didn't take as long as I thought they would, except for *Vanity Fair.* It must have been a riot when it first came out. I mean, all those sly digs at the aristocracy, with copious interpolations by Mr. Thackeray in case you didn't get it when he'd pulled a particularly good gag. Some fun.

And only 78 days to go.

June 1, 1961

ONLY 17 DAYS to go. I saw Mars on the screen today. It seems to be descending from overhead, but Pat says that that's the "torque" doing it. Actually, it's we who are coming in sideways.

We've all grown beards, too. Pat said it was against regulations, but what the hell. We have a contest. Longest whiskers on landing gets a prize.

I asked Pat what the prize was and he told me to go to hell.

June 18, 1961

MARS HAS the whole screen filled. Looks like Death Valley. No sign of canals, but Pat says that's because of the dust storm down below. It's nice to have a "down below" again. We're going to land, so I have to go to my bunk. It's all foam rubber, nylon braid supports and magnesium tubing. Might as well be cement for all the good it did me at takeoff. Earth seems awfully far away.

June 19, 1961

WELL, WE'RE DOWN. We have to wear gas masks with oxygen hook-ups. Kroger says the air is breathable, but thin, and it has too much dust in it to be any fun to inhale. He's all for going out and looking for lichen, but Pat says he's got to set up camp, then get instructions from Earth. So we just have to wait. The air is very cold, but the Sun is hot as hell when it hits you. The sky is a blinding pink, or maybe more of a pale fuchsia. Kroger says it's the dust. The sand underfoot is kind of rose-colored, and not really gritty. The particles are round and smooth.

No lichen so far. Kroger says maybe in the canals, if there are any canals. Lloyd wants to play chess again.

Jones won the beard contest. Pat gave him a cigar he'd smuggled on board (no smoking was allowed on the ship), and Jones threw it away. He doesn't smoke.

June 20, 1961

GOT LOST TODAY. Pat told me

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not to go too far from camp, so, when I took a stroll, I made sure every so often that I could still see the rocket behind me. Walked for maybe an hour; then the oxygen gauge got past the halfway mark, so I started back toward the rocket. After maybe ten steps, the rocket disappeared. One minute it was standing there, tall and silvery, the next instant it was gone.

Turned on my radio pack and got hold of Pat. Told him what happened, and he told Kroger. Kroger said I had been following a mirage, to step back a bit. I did, and I could see the ship again. Kroger said to try and walk toward where the ship seemed to be, even when it wasn't in view, and meantime they'd come out after me in the jeep, following my footprints.

Started walking back, and the ship vanished again. It reappeared, disappeared, but I kept going. Finally saw the real ship, and Lloyd and Jones waving their arms at me. They were shouting through their masks, but I couldn't hear them. The air is too thin to carry sound well.

All at once, something gleamed in their hands, and they started shooting at me with their rifles. That's when I heard the noise behind me. I was too scared to turn around, but finally Jones and Lloyd came running over, and I got up enough nerve to look. There was nothing there, but on the sand, paralleling mine, were footprints. At least I think they were footprints. Twice as long as mine, and three times as wide, but kind of featureless because the sand's loose and dry. They doubled back on themselves, spaced considerably farther apart.

"What was it?" I asked Lloyd when he got to me.

"Damned if I know," he said. "It was red and scaly, and I think it had a tail. It was two heads taller than you." He shuddered. "Ran off when we fired."

"Where," said Jones, "are Pat and Kroger?"

I didn't know. I hadn't seen them, nor the jeep, on my trip back. So we followed the wheel tracks for a while, and they veered off from my trail and followed another, very much like the one that had been paralleling mine when Jones and Lloyd had taken a shot at the scaly thing.

"We'd better get them on the radio," said Jones, turning back toward the ship.

There wasn't anything on the radio but static.

Pat and Kroger haven't come back yet, either.

June 21, 1961

WE'RE NOT alone here. More of the scaly things have come toward the camp, but a few rifle shots send them away. They hop like kangaroos when they're startled. Their

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attitudes aren't menacing, but their appearance is. And Jones says, "Who knows what's 'menacing' in an alien?"

We're going to look for Kroger and Pat today. Jones says we'd better before another windstorm blows away the jeep tracks. Fortunately, the jeep has a leaky oil pan, so we always have the smears to follow, unless they get covered up, too. We're taking extra oxygen, shells, and rifles. Food, too, of course. And we're locking up the ship.

IT'S LATER, now. We found the jeep, but no Kroger or Pat. Lots of those big tracks nearby. We're taking the jeep to follow the aliens' tracks. There's some moss around here, on reddish brown rocks that stick up through the sand, just on the shady side, though. Kroger must be happy to have found his lichen.

The trail ended at the brink of a deep crevice in the ground. Seems to be an earthquake-type split in solid rock, with the sand sifting over this and the far edge like pink silk cataracts. The bottom is in the shade and can't be seen. The crack seems to extend to our left and right as far as we can look.

There looks like a trail down the inside of the crevice, but the Sun's setting, so we're waiting till tomorrow to go down.

Going down was Jones' idea, not mine.

June 22, 1961

WELL, WE'RE at the bottom, and there's water here, a shallow stream about thirty feet wide that runs along the center of the canal (we've decided we're in a canal). No sign of Pat or Kroger yet, but the sand here is hard-packed and damp, and there are normal-size footprints mingled with the alien ones, sharp and clear. The aliens seem to have six or seven toes. It varies from print to print. And they're barefoot, too, or else they have the damnedest-looking shoes in creation.

The constant shower of sand near the cliff walls is annoying, but it's sandless (shower-wise) near the stream, so we're following the footprints along the bank. Also, the air's better down here. Still thin, but not so bad as on the surface. We're going without masks to save oxygen for the return trip (Jones assures me there'll *be* a return trip), and the air's only a little bit sandy, but handkerchiefs over nose and mouth solve this.

We look like desperadoes, what with the rifles and covered faces. I said as much to Lloyd and he told me to shut up. Moss all over the cliff walls. Swell luck for Kroger.

WE'VE FOUND Kroger and Pat, with the help of the aliens. Or maybe I should call them the Martians. Either way, it's better than what Jones calls them.

They took away our rifles and

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brought us right to Kroger and Pat, without our even asking. Jones is mad at the way they got the rifles so easily. When we came upon them (a group of maybe ten, huddling behind a boulder in ambush), he fired, but the shots either bounced off their scales or stuck in their thick hides. Anyway, they took the rifles away and threw them into the stream, and picked us all up and took us into a hole in the cliff wall. The hole went on practically forever, but it didn't get dark. Kroger tells me that there are phosphorescent bacteria living in the mold on the walls. The air has a fresh-dug-grave smell, but it's richer in oxygen than even at the stream.

We're in a small cave that is just off a bigger cave where lots of tunnels come together. I can't remember which one we came in through, and neither can anyone else. Jones asked me what the hell I kept writing in the diary for, did I want to make it a gift to Martian archeologists? But I said where there's life there's hope, and now he won't talk to me. I congratulated Kroger on the lichen I'd seen, but he just said a short and unscientific word and went to sleep.

There's a Martian guarding the entrance to our cave. I don't know what they intend to do with us. Feed us, I hope. So far, they've just left us here, and we're out of rations.

Kroger tried talking to the guard once, but he (or it) made a whistling kind of sound and flashed a mouthful of teeth. Kroger says the teeth are in multiple rows, like a tigershark's. I'd rather he hadn't told me.

June 23, 1961, I think

WE'RE EITHER in a docket or a zoo. I can't tell which. There's a rather square platform surrounded on all four sides by running water, maybe twenty feet across, and we're on it. Martians keep coming to the far edge of the water and looking at us and whistling at each other. A little Martian came near the edge of the water and a larger Martian whistled like crazy and dragged it away.

"Water must be dangerous to them," said Kroger.

"We shoulda brought water pistols," Jones muttered.

Pat said maybe we can swim to safety. Kroger told Pat he was crazy, that the little island we're on here underground is bordered by a fast river that goes into the planet. We'd end up drowned in some grotto in the heart of the planet, says Kroger.

"What the hell," says Pat, "it's better than starving."

It is not.

June 24, 1961, probably

I'M HUNGRY. So is everybody else. Right now I could eat a dinner raw, in a centrifuge, and keep it down. A Martian threw a stone at

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Jones today, and Jones threw one back at him and broke off a couple of scales. The Martian whistled furiously and went away. When the crowd thinned out, same as it did yesterday (must be some sort of sleeping cycle here), Kroger talked Lloyd into swimming across the river and getting the red scales. Lloyd started at the upstream part of the current, and was about a hundred yards below this underground island before he made the far side. Sure is a swift current.

But he got the scales, walked very far upstream of us, and swam back with them. The stream sides are steep, like in a fjord, and we had to lift him out of the swirling cold water, with the scales gripped in his fist. Or what was left of the scales. They had melted down in the water and left his hand all sticky.

Kroger took the gummy things, studied them in the uncertain light, then tasted them and grinned.

The Martians are made of sugar.

LATER, SAME DAY. Kroger said that the Martian metabolism must be like Terran (Earth-type) metabolism, only with no pancreas to make insulin. They store their energy on the *outside* of their bodies, in the form of scales. He's watched them more closely and seen that they have long rubbery tubes for tongues, and that they now and then suck up water from the stream while they're watching us, being careful not to get their lips (all sugar, of course) wet. He guesses that their "blood" must be almost pure water, and that it washes away (from the inside, of course) the sugar they need for energy.

I asked him where the sugar came from, and he said probably their bodies isolated carbon from something (he thought it might be the moss) and combined it with the hydrogen and oxygen in the water (even *I* knew the formula for water) to make sugar, a common carbohydrate.

Like plants, on Earth, he said. Except, instead of using special cells on leaves to form carbohydrates with the help of sunpower, as Earth plants do in photosynthesis (Kroger spelled that word for me), they used the *shape* of the scales like prisms, to isolate the spectra (another Kroger word) necessary to form the sugar.

"I don't get it," I said politely, when he'd finished his spiel.

"Simple," he said, as though he were addressing me by name. "They have a twofold reason to fear water. One: by complete solvency in that medium, they lose all energy and die. Two: even partial sprinkling alters the shape of the scales, and they are unable to use sunpower to form more sugar, and still die, if a bit slower."

"Oh," I said, taking it down ver-

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batim. "So now what do we do?"

"We remove our boots," said Kroger, sitting on the ground and doing so, "and then we cross this stream, fill the boots with water, and *spray* our way to freedom."

"Which tunnel do we take?" asked Pat, his eyes aglow at the thought of escape.

Kroger shrugged. "We'll have to chance taking any that seem to slope upward. In any event, we can always follow it back and start again."

"I dunno," said Jones. "Remember those *teeth* of theirs. They must be for biting something more substantial than moss, Kroger."

"We'll risk it," said Pat. "It's better to go down fighting than to die of starvation."

The hell it is.

June 24, 1961, for sure

THE MARTIANS have coal mines. *That's* what they use those teeth for. We passed through one and surprised a lot of them chewing gritty hunks of anthracite out of the walls. They came running at us, whistling with those tubelike tongues, and drooling dry coal dust, but Pat swung one of his boots in an arc that splashed all over the ground in front of them, and they turned tail (literally) and clattered off down another tunnel, sounding like a locomotive whistle gone beserk.

We made the surface in another hour, back in the canal, and were lucky enough to find our own trail to follow toward the place above which the jeep still waited.

Jones got the rifles out of the stream (the Martians had probably thought they were beyond recovery there) and we found the jeep. It was nearly buried in sand, but we got it cleaned off and running, and got back to the ship quickly. First thing we did on arriving was to break out the stores and have a celebration feast just outside the door of the ship.

It was pork again, and I got sick.

June 25, 1961

WE'RE GOING BACK. Pat says that a week is all we were allowed to stay and that it's urgent to return and tell what we've learned about Mars (we know there are Martians, and they're made of sugar).

"Why," I said, "can't we just tell it on the radio?"

"Because," said Pat, "if we tell them now, by the time we get back we'll be yesterday's news. This way we may be lucky and get a parade."

"Maybe even money," said Kroger, whose mind wasn't always on science.

"But they'll ask why we didn't radio the info, sir," said Jones uneasily.

"The radio," said Pat, nodding to Lloyd, "was unfortunately broken shortly after landing."

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Lloyd blinked, then nodded back and walked around the rocket. I heard a crunching sound and the shattering of glass, not unlike the noise made when one drives a rifle butt through a radio.

Well, it's time for takeoff.

THIS TIME it wasn't so bad. I thought I was getting my space-legs, but Pat says there's less gravity on Mars, so escape velocity didn't have to be so fast, hence a smoother (relatively) trip on our shock-absorbing bunks.

Lloyd wants to play chess again. I'll be careful not to win this time. However, if I don't win, maybe this time *I'll* be the one to quit.

Kroger is busy in his cramped lab space trying to classify the little moss he was able to gather, and Jones and Pat are up front watching the white specks revolve on that black velvet again.

Guess I'll take a nap.

June 26, 1961

HELL'S BELLS. Kroger says there are two baby Martians loose on board ship. Pat told him he was nuts, but there are certain signs he's right. Like the missing charcoal in the air-filtration-and-reclaiming (AFAR) system. And the water gauges are going down. But the clincher is those two sugar crystals Lloyd had grabbed up when we were in that zoo. They're gone.

Pat has declared a state of emergency. Quick thinking, that's Pat. Lloyd, before he remembered and turned scarlet, suggested we radio Earth for instructions. We can't.

Here we are, somewhere in a void headed for Earth, with enough air and water left for maybe three days — if the Martians don't take any more.

Kroger is thrilled that he is learning something, maybe, about Martian reproductive processes. When he told Pat, Pat put it to a vote whether or not to jettison Kroger through the airlock. However, it was decided that responsibility was pretty well divided. Lloyd had gotten the crystals, Kroger had only studied them, and Jones had brought them aboard.

So Kroger stays, but meanwhile the air is getting worse. Pat suggested Kroger put us all into a state of suspended animation till landing time, eight months away. Kroger said, "How?"

June 27, 1961

AIR IS FOUL and I'm very thirsty. Kroger says that at least—when the Martians get bigger — they'll have to show themselves. Pat says what do we do *then?* We can't afford the water we need to melt them down. Besides, the melted crystals might *all* turn into little Martians.

Jones says he'll go down spitting.

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Pat says why not dismantle interior of rocket to find out where they're holing up? Fine idea.

How do you dismantle riveted metal plates?

June 28, 1961

THE AFAR SYSTEM is no more and the water gauges are still dropping. Kroger suggests baking bread, then slicing it, then toasting it till it turns to carbon, and we can use the carbon in the AFAR system.

We'll have to try it, I guess.

THE MARTIANS ate the bread. Jones came forward to tell us the loaves were cooling, and when he got back they were gone. However, he did find a few of the red crystals on the galley deck (floor). They're good-sized crystals, too. Which means so are the Martians.

Kroger says the Martians must be intelligent, otherwise they couldn't have guessed at the carbohydrates present in the bread after a lifelong diet of anthracite. Pat says let's jettison Kroger.

This time the vote went against Kroger, but he got a last-minute reprieve by suggesting the crystals be pulverized and mixed with sulphuric acid. He says this'll produce carbon.

I certainly hope so.

So does Kroger.

BRIEF REPRIEVE for us. The acid-sugar combination not only produces carbon but water vapor, and the gauge has gone up a notch. That means that we have a quart of water in the tanks for drinking. However, the air's a bit better, and we voted to let Kroger stay inside the rocket.

Meantime, we have to catch those Martians.

June 29, 1961

WORSE AND WORSE. Lloyd caught one of the Martians in the firing chamber. We had to flood the chamber with acid to subdue the creature, which carbonized nicely. So now we have plenty of air and water again, but besides having another Martian still on the loose, we now don't have enough acid left in the fuel tanks to make a landing.

Pat says at least our vector will carry us to Earth and we can die on our home planet, which is better than perishing in space.

The hell it is.

March 3, 1962

EARTH IN SIGHT. The other Martian is still with us. He's where we can't get at him without blowtorches, but he can't get at the carbon in the AFAR system, either, which is a help. However, his tail is prehensile, and now and then it snakes out through an air duct and yanks food right off the table from under our noses.

Kroger says watch out. *We* are

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made of carbohydrates, too. I'd rather not have known.

March 4, 1962

EARTH FILLS the screen in the control room. Pat says if we're lucky, he might be able to use the bit of fuel we have left to set us in a descending spiral into one of the oceans. The rocket is tighter than a submarine, he insists, and it will float till we're rescued, if the plates don't crack under the impact.

We all agreed to try it. Not that we thought it had a good chance of working, but none of us had a better idea.

I GUESS you know the rest of the story, about how that destroyer spotted us and got us and my diary aboard, and towed the rocket to San Francisco. News of the "captured Martian" leaked out, and we all became nine-day wonders until the dismantling of the rocket.

Kroger says he must have dissolved in the water, and wonders what *that* would do. There are about a thousand of those crystal-scales on a Martian.

So last week we found out, when those red-scaled things began clambering out of the sea on every coastal region on Earth. Kroger tried to explain to me about salinity osmosis and hydrostatic pressure and crystalline life, but in no time at all he lost me.

The point is, bullets won't stop these things, and wherever a crystal falls, a new Martian springs up in a few weeks. It looks like the five of us have abetted an invasion from Mars.

Needless to say, we're no longer heroes.

I haven't heard from Pat or Lloyd for a week. Jones was picked up attacking a candy factory yesterday, and Kroger and I were allowed to sign on for the flight to Venus scheduled within the next few days — because of our experience.

Kroger says there's only enough fuel for a one-way trip. I don't care. I've always wanted to travel with the President.

— JACK SHARKEY

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By RAYMOND E. BANKS

TRANSSTAR

Illustrated by DICK FRANCIS

THE small group of Earth colonists stood on a hill, tense and expectant, as their leader advanced. He walked slowly away from the huddled mob holding up his gun. You could hear the mother weep.

I stood at ease to one side, as was proper. I knew what would happen, because I was from Transstar. We have been taught to understand the inevitable.

The child came running out of the woods. I noted that they were

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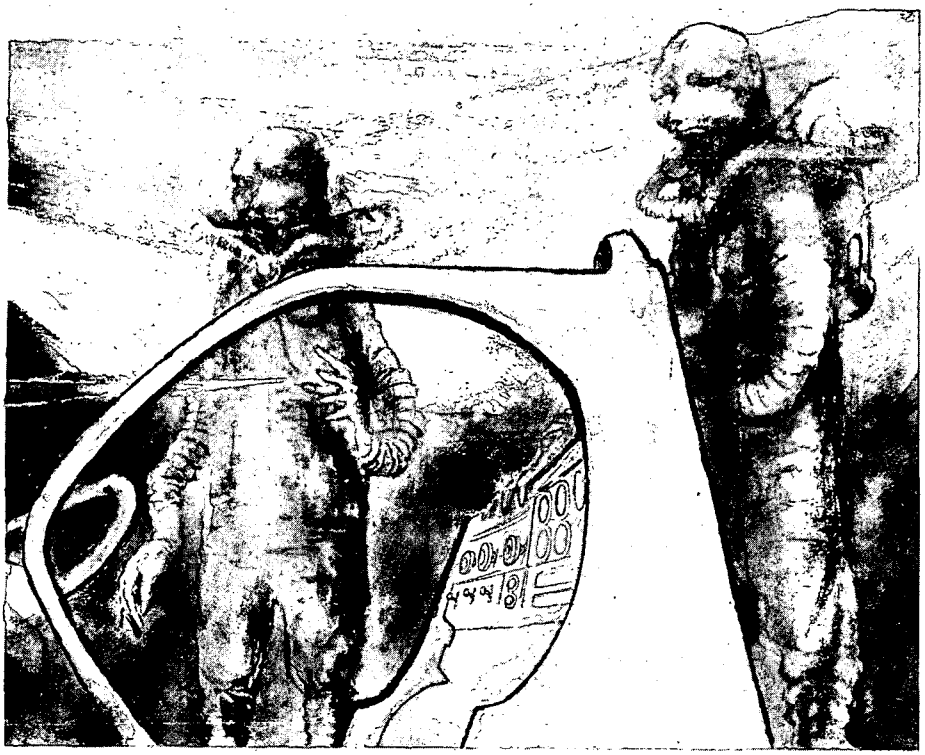

A Transstar agent's duty was to observe, not to save lives. But sometimes his duty was — not to know where his duty stopped!

not the woods of Earth, though they were brown. Nor was the grass the grass of Earth, though it was green.

The child cried, "Mother!" The leader raised his gun and shot it.

Even though I understood that the child was no longer a "him" and had become an "it" since falling into the hands of the aliens, I felt a tremor underneath my conditioning. In Transstar you are taught that the conditioning is a sheath, pliable but breakable; you do not put all faith in it.

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Now the important thing was the reaction of the small group of Earth colonists.

They had seen the heartbreaking inevitable. They knew with the logic of their minds that the boy had to die. On this planet there were two races, two kinds of life: the eaber and the Earthmen. The eaber would lure a child away if they could and see to its infection, returning it to the Earth colony.

It was a good trick the first time or two, and for the love of its children three thousand lives had been lost, two starting colonies wiped out. This third colony had to succeed. I suspected that was why Transstar sent me here.

The leader turned sadly towards his colonists. A man advanced: "A burial! It is safe to bury!"

"It is not safe to bury," said the leader.

The man raised his arm. The leader hesitated and lost both his leadership and his life, because the half-maddened parent shot him in the chest...

RACKRILL came to my Transstar ship. "You stood there," he said, eyes accusing. "You sit here now. You let the eaber do these things to us — yet you're from Transstar, representing the incredible power of the Sol system. Why?"

"Transstar was formed to handle star-sized situations," I replied. "So far this colony is meeting only the problems of a local situation."

"Local situation!" He laughed bitterly. "I'm the third mayor in three weeks."

"There'll be no more children lost to the eaber," I said.

"That's for certain-sure," he said, "but Transstar might lose one of its representatives if it doesn't help us in our fight against the eaber. Our colony is sickened to watch you with your magnificent star-ship and your empire of power, standing by while we suffer."

"I am sorry."

He raised his hands and stepped towards me, but an orange light hummed from the walls. He looked surprised. He dropped his hands.

"Now that you've properly cursed me, tell me the real reason for your visit, Mr. Mayor," I said, flicking the protective button off.

He eased into his chair wearily. It was a great planet to take the starch out of the leaders.

"We had a visit from the eaber." He went on talking eagerly. The eaber had picked this planet, Point Everready, as an advance planet-city for their own culture. They would kill the Earth colony if it didn't leave. Rackril had told them about Transstar, about me. That I represented the total war capacity of the solar system. That I was in instantaneous touch with Transstar Prime, near Mars, and that behind me stood a million space

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ships and countless prime fighting men, with weapons of power and vigor that could pulverize the eaber to dust. That I was there to see that the Earth colony survived.

"This is only partly true," I said. "I am here to see *whether* an Earth colony can survive."

Anyway, Rackril had gotten the eaber stirred up. They were coming to see me. Okay?

"I am Transstar," I said. "I can only observe, not interfere."

He got mad again, but there was really no more to say. He left, going from the marvelous machinery of my ship back to the crudeness of the village. I felt sorry for him and his people and wished I could reassure him.

I could not.

Yet somewhere back at Transstar Prime there was more than ordinary interest in Point Everready. I wondered, as every Transstar agent must, how far Transstar would go on this project. Few Transstar men have ordered Condition Prime Total Red. Condition Prime Total Red is the complete amassing and release of our total war-making capacity directed at one enemy in one place at one time. You don't get a CPTR more than once in decades; men in Transstar have served a lifetime and never directed one.

This is good, because CPTR is devastating in cost, machines and men. It is the most jealously guarded prerogative of the Transstar system, which is in itself merely a check-and-report to keep track of all Earth colonies spread out among the stars.

I LOOKED at my condition panel. It glowed an off-white on the neat star-ship wall. Condition white, nothing unusual; the same color I had stared at for five years as a full agent and fifteen years before that as both associate and assistant, learning the Transstar operation.

I thought about the dead boy, sleeping now on the grasses of Everready, as I made my daily report, pricking a card with three simple marks, feeding it to the transmitter which reported back to Prime. It seemed unfair, even with all my years of Transstar conditioning, that a boy would only deserve three pinpricks in a daily report. The human race had not been standing behind him.

It probably would not stand behind this colony.

For that matter, though I had the safety of this rather expensive star-ship, the human race would probably not stand behind *me,* if the eaber turned out to be tough aliens. Many an agent has died in local or regional situations.

I drank a cup of tea, but the warm drink didn't help. Somehow these last years I had become more emotional. It was hard to be a

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Transstar agent — for, by the time you learned how, you were too knowing in the ways of space to keep that prep school enthusiasm. I remembered the men who had lived and the men who had died as I drank my tea and felt sad.

Towards midnight the colonists sent scout ships up, as ordered by Rackril. They were met by an equal number of eaber scout ships.

The patrol fight was dull, with drones being chopped off by both sides. Nothing decisive. The eaber were good. I wondered if they also had a Transstar somewhere back at their home planet, a totality of force that might match Condition Prime Total Red, and result in a stand-off fight. This had never happened in history. Someday we might even find somebody better than CPTR.

At that instant expansion to the stars would stop, I knew.

Whatever I thought about the eaber at long distance, I'd have a chance to learn more. A couple of them were now approaching my ship.

They were sentient life. They were neither monsters nor particularly Earthlike. It was this balance of like-unlike that gave me the beginnings of a shudder under my conditioning.

The reddish one advanced into my cabin. "Euben," he said. He made a motion of turning with his hands, tapered fingers spread. A surge of sickness tickled in me, rushed up to a nerve agony. I just had time to relax and let the raping power of his ray, or whatever it was, knock me out into a welcome darkness. A non-conditioned man would have screamed and writhed on the floor, fighting the overpowering darkness. I rushed with it, gave in to it.

PRESENTLY there was a gentle bird-twitter. I sat up; Euben's power turned off. He laughed down at me.

"Some Earth-power, some potency," he said, gesturing at my control panel. I had, indeed, pushed my orange safety button, which should have frozen him immobile as it had Rackril. It had no effect on him or his friend.

I tried to get up, but was as weak and shaking as an old man. So I sat there.

"You are the protector to the Earthians," he said.

"No, Euben. I am merely here to observe."

"You'll observe them made extinct, Watcher," he said. "This is the perimeter of eaber. We want this planet ourselves."

"That remains to be seen," I said, finally rising stiffly and plopping into my chair. I turned off the useless orange button.

Euben roamed his eyes around the ship. "Better than your colony has. You are special."

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"I am special," I said.

"They say you represent great power," he said.

"That is true."

"We have waited a long time to see this power," said Euben. "We have exterminated two of your colonies, and have not seen it."

"If this is all of eaber, it isn't very large," I said. "This planet could hardly hold a hundred thousand."

"I said we were perimeter. Behind us, thousands of planets. Trillions of eaber. There is nothing like us in the universe."

"We've heard that before."

This time he brought up two hands, to begin his twirling. I reacted with a hypnosis block, which shunted off all my natural functions for a micro-second (with the help of the plate I was standing on). The pain was much less. He merely brought me to my knees.

"Ah, you are not totally feeble," he said. "Still I make you bow to me with the twisting of my bare hands in the air."

"Yes. But Earthmen do not greet new races with tricks and talk like two small boys bragging about how tough their older brothers are," I said. "I am not here to brag tough. I am here to observe."

"If you don't like what you observe?"

"Perhaps we will do something about it. Perhaps not."

He threw back his head and laughed. "You will die, die, die," he said. "Watch this." He nudged the other eaber who stepped forward and brought something out of his robe.

It was a boned, dehydrated human.

The thing — evidently a human survivor of an earlier colony — had the floppy, mindless manner of a puppy dog, mewling and whimpering on its long chain. Euben snapped his fingers. The former human ki-yied and scampered back under its owner's robe.

"Cute," said Euben. "De-skeletoned Earthmen bring a good price in the pet-shops of eaber, so you are not a total loss in the universe."

THERE came a sudden scream and convulsion from the eaber's robe. The eaber jumped back. The tragic, deboned human fell to the floor dead, spending a thin, too-bright red ebb of blood.

"Eh — how did you do that?" asked Euben, stepping back a little.

"I am Transstar," I said. "Certain things we do not permit with our life-form. I urge you not to continue this practice."

"So—" said Euben toeing at the dead man. "And he was so cute, too. Ah, well. There are more out there."

I controlled my voice and did not look down. "Can you establish your need for this planet?" I asked.

"Yes. We are eaber; that is enough anywhere in space."

I stepped to a wall chart and

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made a gesture. "This planet also falls along our perimeter. We occupy this space — so. We have well utilized the solar and alpha planet systems, and it is time that we move out once more. This planet is but one of a thousand Earth colonies moving out to new space."

Euben shook his head. "What a ridiculous civilization! All space in this arc is eaber. We close the door, so—"

He made a fast gesture with his hand that tore inside of me, like a hot knife, scraping the bottom of my lungs. I was pretty much riding on my conditioning now. I was sickened, angry with Euben and his race. But it was slightly different from dealing with an Earth neighbor you dislike. Bravery and caution! Always bravery—and caution.

"So you block us here," I said. "Perhaps we will go elsewhere for a hundred or a thousand years. It's no use to fight over space. There are millions of planets."

"Do you truly believe so?" smiled Euben. "Naive! The eaber do not like unknown life-forms prowling the universe. We will come to solar and alpha, as you call them, and put you on a chain like that one dead on the floor."

"We might resist that," I said.

"How?" said Euben, bringing a black box out from under his robe.

I have had my share of black boxes in my Transstar years. Before it was barely in sight, I had retreated to my all-purpose closet. He laughed, peering at me through the observation window and tried the various rays and whatnot in his weapon. Nothing much happened for a while — heat, radiation, gas, sonic vibrations, the standard stuff. Pretty soon I knew he could take me; but it would take him about three days. Fair enough.

The eaber were tough, but not unbeatable — at least on what he had shown me.

He put away his black box. I stepped through the door. Decontamination worked all right, but the heat-reducer was wheezing like an asthma victim in a grain field.

"So. You are junior good," said Euben. He turned and left the ship, whistling in a very Earthian way, not bothering to look back.

The other eaber remained. I offered him a cup of tea, which he drank greedily. He had something that looked a little like a serpent's tongue which he ran quickly over the control board panels. He sniff-tasted the instruments, the furnishings, the modest weapons and communications equipment I had. Then he stepped back.

"You will not survive eaber," he said. He left, not bothering to step over the deboned Earthman.

I picked up the soft, cooling mass and set it on the TV cradle. I didn't call through channels. I slapped the Transstar Central button and let

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them have a look at the creature on the plate.

HENNESSY was on the monitor at Transstar Prime, near Mars. He gasped. "That's not good," he said. "Just a minute."

I sank into the chair and made more tea with shaking hands. The screen above me lighted and I was staring at Twelve. Thirteen is as high as you get in Transstar. "You've bought it," he said. "In your arc you have the only mind-contact with the eaber. Elsewhere they've only made patrol war."

"Anybody solved them?" I asked.

"Yes and no," said Twelve Jackson slowly. "They can hit us with a freeze-burn system they've got. Explodes you. We can reach them with most of our conventionals, but they don't die easily. Range and depth of their civilization, unknown."

I told him about their trillion — according to Euben. Then I asked, "What's my condition?"

Jackson hesitated and I saw his hands twiddle over his buttons. "Condition orange," he said, taking me off white. Power reached through space. In seventy-five seconds I could feel the sudden, subtle shift in the ship's power fields, as they built up.

"Don't get excited," he said. "I've got a dozen oranges on the board."

"What about the colony here?" I said.

"A colony is a local situation," said Jackson. "Unfortunately, if we squandered our life-power every-time a few colonists died, we'd still be confined to the moon. They colonize of their own free will."

I touched the dead Earthman.

"Yeah," he said. "Nobody knew about that. It'll get your planet plenty of free space in the TV casts. We'll get a blubbering from the League for Space Safety."

"It makes me want to blubber a little myself," I said.

Twelve Jackson gave me a long, hard look. "Stay Transstar or get out," he said.

I gave him the rest of my report-interview on the tape and tried to get some sleep. The eaber came over the colony about midnight and bombed it a little, and I groaned awake.

It must have been a half-hour later that I heard a scratching on the ship's window. It was Rackril, peering in at me.

When I joined him in the soft spring night he was excited.

"I've got something to show your high-falutin' boys back at Mars," he said. "A real something."

We went in silence to his headquarters through the sweet night grasses of Everready. It was truly a planet of richness and beauty in a natural sense, and I thought again of the contrast of the poisoned boy and the monstrosities of human pets that the eaber had created un-

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der this moon, in their eaber cities, on this fine world.

My mood was shattered the instant we stepped into Rackril's combination mayor's home-administration center. The Colony Correspondent had arrived.

There are simply too many Earth colonies for the space news services to cover them all. So they assign a Colony Correspondent to cover the whole arc, and you always find them where the most trouble is.

THIS one was a woman. She was of the young, peppy breed of females that start out life as a tomboy and remain in trouble all of their lives because they like to take chances. I was doubly disturbed. First because it meant that wildly distorted stories would soon be muddying things back in solar and alpha; second, because this cute lady reminded me of my own Alicia, who had been a Transstar agent along with me, back a seeming thousand years ago when I was merely a Four. She had the same snapping black eyes, the same statuesque figure, the same light-humored air.

"Well, so Transstar is really here!" she said. "Hey, Chief, how about a Transstar quote?"

"Young lady, I am not Chief," I said drily. "My name is Webster, and I hold the Transstar rank of Seven, and you well know that all Transstar quotes must come from Transstar Prime."

"Those fossilized, dehumanized old men on Mars," she said. "Never mind. I'll find my own stories."

"Not here you won't," said Rackril, with authority's natural fear of the tapes. "It's past midnight. Go to bed. Tomorrow my tape man will give you a tour."

She stuck out her tongue. "I've had the tour. They're all alike, full of lies and grease, signifying nothing. Only thing I ever learned on an official tour was how to defend myself against the passes of the tape men."

But she allowed herself to be pushed out. I guess it was the near-tragic urgency of our manner.

Rackril led me into an inner room. On the bed rested a woman, but there was a strangeness to her. She was ancient in her skin, yet something about her bones told you she was hardly thirty. Her flesh was blue-splotched, the eyes animal-bright. Rackril gestured at her; she whimpered and squirmed in her bed.

I laid a hand on his arm. "The eaber can hypnotize and make a hand gesture that tears you apart inside," I said. "Don't hold up your hands in front of her."

"We got her story," said Rackrill, low-voiced. "She's been prisoner to the eaber for over a year. From Colony Two, I guess. The eaber used her for — breeding."

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He led me to a smaller cot, where a blanket covered a figure. For a fleeting second I didn't want him to pull back the blanket. He pulled it back.

The creature on the bed was dead, shot with a Colony bullet. You could tell that it was a boy about three feet long. There was Earthman in him and eaber. The head and arms were Earthian, the rest eaber. It was shocking to see the hard-muscled dwarf body under that placid, almost handsome head.

"Barely five months," whispered the hag on the bed. "Forced insemination. Always the hands twisting — always the pain."

"A friendly scientific experiment," said Rackril. "They want drones for the slag jobs in their cities. Jobs eaber won't do. They've produced a hundred or so of those idiots from captive women colonists. Force-fed and raised — this one is barely five months old, yet look at his size!"

I SAID nothing, busy with taking my tape, holding on to my objectivity through a force of will and my conditioning.

Rackril opened the dead mouth. It was an exaggerated eaber tongue, black and reptile shaped. "No speech, therefore no intellect. Nor does it have mind speech like true eaber. It begs for food and does crude tasks to get it. I showed it to the men. One of them shot it. Nobody blamed him. Tomorrow we're going out and take these rats, and rescue those poor women that are still over there. Does your highness condescend to ask for a little Transstar help?"

"Transstar won't like this life-form meddling," I said. "This is the second time."

Rackril slumped into a chair, looking at the woman who whispered some private incantation against the evils she had come to know.

"I've got two thousand colonists, five hundred ships," he said. "With or without your help, we're going out tomorrow and take them."

"They've got a few more ships, Rackril."

He appeared not to hear. He sat there staring at the woman while I gathered up the eaber drone's body to take back to my ship.

"For God's sake, get Transstar," he said, as I left, and it was a prayer.

Shortly before noon next day, Rackril was back at my ship. He pointed to the sky over the colony, where his small fighting ships were rising. "What did your bosses say?" he asked.

"They said," I replied, "that Transstar has to look after the safety of the whole human race, and cannot match colonists man for man. There are safe places in alpha and solar to live — men are not ob-

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ligated to seek danger. However, they are disturbed about the drone. I am to give an official protest and warning to Euben the eaber, which I have done."

"Is that *all!*"

I closed my eyes. "They also demoted me one rank, from a Seven to a Six, for having left my ship unattended in the middle of last night. During the time we examined the drone, a bumptious Colony Correspondent sneaked into my ship and taped an eaber monstrosity I had on the TV plate. She flung her sensationalism to the planets and nations of alpha and solar. To put it mildly, this has rocked the Galaxy, which is fine with our Colony Correspondent. She gets paid according to the number of TV stations that play her tape."

"The universe should know!" cried Rackril.

"The universe has always known," I said. "Every history book tells of worse things in almost every Middlesex village and town. Transstar is not in show business, nor in policy-making. It observes and objectively attends to the broad general welfare of the Earthian universe."

Rackril's voice was hoarse. "I have one empty ship," he said bitterly. "I lack a pilot. Will Transstar at least do me the favor of helping to fill that?"

"It will," I said, reaching for my combat slacks.

THIS was a wild, foolish mission, and I knew it. But I wanted to get as close as I could to eaberland, which I had only observed at a distance. And I wanted to do something about the affronts to my system.

Sometimes it's good to fire a killing ray, even if it doesn't mean much.

We passed over three middle-sized eaber cities, the queerest cities I'd ever seen.

"Practically all landing fields," said a feminine voice in my ear. I looked to my left. The Colony Correspondent was riding a patrol ship on my right. I thanked her for achieving my embarrassment.

"Oh, that's all right, Doc," she said. "You're officialdom. Natural enemy. You'll get in your licks."

"I'd rather take mine in kicks. And I know where I'd like to plant my foot," I said.

I got a brash laugh. Foolish girl! Women do not have to be aggressive. There's the kind that make a fetish of rushing in where brave men hesitate. On their maimed and dead persons, the news tapes fatten and flourish.

Rackril's group thought they were fighting the battle of the eon. They were trying to land at the most advanced city where the captive Earthwomen were thought to be. The action was good. I was gloriously bashed around and managed to shoot down my eaber ship.

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It wasn't a difficult action for a Transstar-trained man. I was more interested in observing that the eaber had out an equal patrol of five hundred to oppose us. But, with all the noise and banging that a thousand-ship fight makes, I could observe that there were easily ten or fifteen thousand more eaber military ships on the ground we ranged over.

So the cities were not colonies. They were military bases for a large operation.

More interesting than the ships at hand were the extremely large areas being cleared and laid out for additional ship concentrations. I estimated that they could eventually base over a hundred thousand ships.

That would interest Transstar immensely.

Rackrill broke off the action when he had a mere hundred ships left. We limped back to the colony without being able to land in eaber territory. In fact, I doubted if the eaber chiefs regarded this as more than a quiet afternoon's patrol action. With their layout I couldn't blame them.

We almost missed the colony and had to sweep back once more. Yes, there was my Transstar ship, glowing orangely on the ground. But what a changed ground! It was brown and bare, a desert as far as the horizon.

During Rackril's attack a secret eaber counter-attack had swept the colony's transport ships, its buildings, and Rackril's fifteen hundred colonists into oblivion.

IN times of shock men do drastic — or foolish — things. Rackril's group of survivors began to bring down the cooking equipment and bedding from their ships, preparing a camp for the night on the blighted cemetery of their colony, dazed and tearful.

"Ada, Ada," Rackril moaned softly, his thick fingers picking at a gleaming aluminum pot. "Ada gone, Johnny gone—"

I noticed that Martha Stoner, the tape-girl, had at last lost some of her high gloss. She stared at the scene, stunned. I could almost calibrate the change in her, from a high-spirited girl to a shocked and understanding woman.

I couldn't hold back comment. "Now you see the frontier," I said to her. "Now you've got a real tape that all the stations can use." She shook her head dumbly. "Go home, Rackril," I advised the benumbed leader. "Take your men and go home."

He turned on me with teeth bared and lip trembling. "You — and that Transstar fraud. You let this happen! Tell your piddling button-pushers we will never go home!"

The words rang bravely on the scorched ground, while an eaber

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patrol, high up, gently wafted over us on an observation mission.

I shook my head. "At least go off in the forest where you have some protection — and some wood for your fires!"

I turned to go. A clod of soil struck my back, then a small stone.

"Go, Transstar filth, go!" They were all picking up the chant now.

"I'll file a tape all right!" cried Martha. "I can still get through to the world. The people will act, even if Transstar won't."

I didn't want to run.

I swear, this was my worst moment, because I had seen this distress many times. I understood their monumental shock. But if I did not run I could be seriously disabled by their attack. At any moment one might pull a gun. My job was to remain in good health so I could observe.

So I ran towards my ship.

They followed in a ragged company, shouting, cursing and at last pulling guns. I barely escaped into the orange-hued safety of the Transstar ship before the rays flew. The colonists danced and pranced around the ship, shooting at it and beating on it, like nothing so much as forest natives attacking an interloper. I understood and discreetly closed the portholes.

"Order them home," I begged Twelve Jackson. "They are doomed here."

"We don't have the power," said Jackson. "We can only help them home if they want to go."

I rang up Euben on the eaber channel which I used for official communications — so far, mostly for protests. Euben made his innocent, bird-twitter laugh. "Thank you for your protest about the colony extinction," he said. "This keeps my clerks busy. Your colony may leave at any time. In fact, I recommend this. We will need all the space on this planet very soon."

THREE days passed.

I found the remnant of Rackril's tattered colony in a sort of forest stockade. They were stiff with me, embarrassed about the stoning incident. They were ghost men, and a few women, going through the motions of building crude houses and planting their food.

Martha was an exception.

"They will stay," she said proudly, her eyes glowing. "They will be buttressed by the great crusade our space tapes have started. First the story of the miserable pet-human, then the eaber drone thing, then the mass attack on the unguarded colony. Back home men are leaving their jobs, pouring their savings into fighting ships. Institutions are subscribing money. Governments are amassing new fighters. We've got the backing of all the thinking men in solar and alpha!"

"It is too late in civilization for

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an emotion-powered, unorganized mass movement to succeed," I said. "Only Transstar is properly equipped for space war."

"Even Transstar men are quitting to join us!" she cried.

"Possibly a few at the lower levels. Not the agents."

"No — not the dehumanized agents! Nor the feeble old men of Transstar Prime who stole their power from the governments of men, who drool over buttons they never dare push!"

"The eaber do this to provoke us," I said, "to show our power at their command, at their site of battle, at a time they control. That's why Transstar Prime won't be sucked into the trap."

"They want to fight us. The time is now!" she said.

"The time is not yet," I said.

I went back to my lonely ship, haunted by the faces of Rackril and his men as they glowed on my report tapes. I hunted the news broadcasts of solar and alpha and watched the revulsion and convulsion of men back home — the enormous waste of the emotional jag. I saw ships starting from Earth to reach us, ill-prepared even to reach the moon, hurling across space vastnesses to become derelicts. I saw men throwing their pocket money at passing paraders of the anti-eaber crusade, normal shipping woefully hampered by the ridiculous items being sent to Rackril's defenders. Government leaders, sensing the temper of the voters, threw their weight at Transstar Prime, calling for action. They got nowhere. Transstar resists temporary popular politics just as it does local situations.

"You certainly can't call this a local situation!" I told Twelve Jackson.

He sighed. "No, not any more. But the principle is missing. Everybody's mad, but the eaber haven't yet posed a major threat to the human race."

"They've got a couple hundred thousand fighting ships at our perimeter," I said.

"They haven't invaded territory we call our own. All the fighting is in no-man's land. We're trained to determine a real danger from a false one, and so far they don't seem to be a real danger."

"It can get late fast," I said.

"Are you ready to ask for Condition Prime Total Red?"

There was a silence while I tried to separate my sympathetic feelings from the intelligence of the military situation. "No, sir," I said.

"Thirteen Mayberry agrees with you," said the Twelve, looking over his shoulder, and then I saw the shadow of a sleeve of the top man. Transstar's Prime Prime, as the agents half-jokingly called him.

At least the desiccated old men near Mars were getting more interested.

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ON the day the first Earth-crusade task force arrived, both Martha and Rackril came to the ship.

"You know it's the end of Transstar," Martha told me. She was more subdued and serious, but she still had the high-school glow of mysticism in her eyes. "The people have been sold out for the last time."

"No one's been sold out," I said. "We are in a painful contact with a race that is both powerful and primitive. They can't be reasoned with, yet we can't blow them up until, at least, they give evidence that they intend to blow us up. So far it's only a border incident, as they used to be called in one-world days."

"We aren't waiting," said Martha. "Five thousand ships! The first wave of the anti-eaber crusade will attack soon."

Martha put me so much in mind of Alicia — the way she held her head, the way she moved her hands. Once both Alicia and I had been at a point of resigning from Transstar and leading normal lives. But something in the blood and bone had made our marriage to Transstar stronger — until she was killed on a mission, and it was forever too late for me to quit. I was aware that I was too loyal to the organization, which was, after all, merely another society of men.

Yet, right now, I found myself questioning Prime's judgment.

Certainly they could have given me power to negotiate for the colony with Euben. Certainly there were some potent weapons, short of total war, which we could have used on these vain primitives as easily as the ones they used on us. Nor need I have been brought to my knees in front of Euben.

Yet my orders were to observe — report — take no action.

We went aloft to watch the Earthmen's attack. Both Martha and Rackril were set for an initial penetration to the first eaber city. As the massive fleet from Earth wheeled in from space and went directly to the attack, they cheered like students in a rooting section. I cautioned them that five thousand ships, strained from a long flight from alpha, could hardly upset the eaber.

"It's only the first group!" cried Martha. "This is only the glorious beginning!"

The eaber took no chances. They lofted fifteen thousand ships and pulled the Earthmen into a box.

It took them about four hours to defeat the Earth attack. When the four hours passed, only about three hundred of the Earth fleet remained to sink to the oblivion of Rackril's colony and lick their wounds.

"No matter," said Martha as we landed. "There will be more tomorrow and the day after that and af-

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ter that. We'll blacken the skies with ships."

But she went quickly, avoiding my eyes.

"You'll always have sanctuary on my ship," I told Rackril as he went.

"Your ship!" he snorted. "After today I'd rather trust my own stockade when Euben comes around. Incidentally, he has been kidnapping my work parties. Tell him we don't like that. Tell him we've been able to catch a few eaber, and when we do we cut them into four equal parts while they're still alive."

"Please don't," I said.

EUBEN came along as I was having my evening tea. "Ah, my scholarly friend with the glasses and the tea-drinking, the big words and the scoldings. I must thank you for keeping at least a part of our fleet in practice. A rather nice patrol action today, Webster. Is that your Transstar?"

"No. I ask you now what your intentions are as to this planet and our future relations," I said, aware that Transstar Prime, through this ship, had been watching the long day's affairs.

Euben had brought his friend with him. They both lolled at their ease in my cabin.

"It has been hard to determine," said Euben. "We have finally decided that, rather than waste rays killing off all Earthmen, we shall simply turn them into eaber. An inferior eaber, but still eaber. We have taken a few samples from Rackril's post as prototypes."

"This is forbidden!" I snapped.

"You will declare war?" asked Euben eagerly. I thought his eagerness had grown.

"We don't know whom we deal with," I said. "You may be only a patrol captain, with a small command."

"I could also be commander-in-chief of all the eaber in space," said Euben. "Which I happen to be."

He said it too offhandedly to be a lie, although I suspected he was really deputy commander to the silent eaber who stood behind him.

"Then I formally demand that you cease and desist all harassments, mutilations and hostilities against humans," I said.

Euben looked at me a long time. Then he held out what could reasonably be called an arm, which his companion grasped.

My ship seemed to whirl about me. It was no such thing. Instead I was suspended upside down in the air over my desk, and Euben and the other left the ship. "Farewell, brave-foolish," called Euben mockingly. "Next time I come it is to collect you for eaberization!"

His laugh was proud and full of confidence.

When I finally managed to right myself and get back behind my

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desk, I called Transstar Prime and got Twelve Jackson. I feared I saw a flick of amusement in his eyes. "They are determined now for war," I said. "How do we stand?"

"You continue to observe," said Jackson. "Point Everready is not necessary to Earth. And you have not convinced us that a battle needs to be fought."

I had not convinced them. But what did *I* — a mere agent — have to do with it?

I rang off and closed the ship, in sorrow and anger. I had been aloof from the situation, to the point where Euben had stood me on my head and threatened to capture me bodily.

I put on my combat slacks and broke out my weapons. Transstar could remain uninvolved, but I wasn't going to sit at my desk, be stood on my ear and blithely be turned into an eaber all for the glory of the organization.

I rode over to Rackril's stockade full of cold purpose.

I was no rugged-primitive colonist. I was a trained agent, with quite a few good weapons and considerable experience in hostilities, especially against alien life-forms. Euben would have no easy time taking me.

I found Rackril in more trouble. "Look," he fumed, pointing to a dead eaber at the wall of the stockade. "We shot this fellow. Look closely."

It was easy to see that it was one of his own colonists, upon which extensive biology had been used to turn him into something eaber-like.

"It's going to happen to us all," shuddered Martha. "The crusade has collapsed. There'll be no more Earth ships. Distances are too great — governments are too busy with their home affairs. We have been outlawed in all major planets."

I stared at the white-faced colonist leaders in distaste.

"For God's sake, quit sniveling and feeling sorry for yourselves," I said. "We're going to fight these beasts and do it right. First, I want an antenna. I can draw power from my ship that the eaber can't crack. Second, I want to fight an eaber-type war. Get your colonists together for indoctrination. These eaber have primitive mind-reading abilities; I want to start training our men to set up mind guards against that. Last, we're going to dig some tunnels in this ground and blow the eaber into orbit. They don't like things underground. They have no defense for it. So let's get organized!"

"Thank God!" cried Martha. "Transstar is coming in at last."

"No," I said. "Just Charles Webster."

WE fought the eaber for twenty days.

They couldn't penetrate the

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power wall I set up with the help of the ship, using Transstar power. They couldn't waylay our work parties in the woods after I taught them how to use mind-blocks which were meaningless to the eaber.

We got our tunnel through and blew up one third of an eaber city with one of my strontium 90 pills. We were also able to capture a few eaber patrol ships and send them right back, with fair-sized atomic blasts. The rest we manned and used against the eaber. They were totally confused with being attacked by their own ships. It wasn't enough to destroy a twentieth of their operation. But it kept them busy.

I was never once outside my combat slacks.

I got little sleep. I lived for the present moment, working hand and shoulder with Rackril's men. When disaster came, it came all at once.

I led a night patrol to place the next strontium 90 pill overland — tunneling was too slow. I caught an eaber freeze-ray that shattered my leg. In the confusion we lost Martha to the eaber, which I only learned when I'd been carried back to the stockade.

When dawn broke, Rackril shook me out of a dazed sleep.

"Look," he said.

"Ten thousand ships to destroy two dozen men," I laughed. "It's all right, Alicia."

Rackril slapped my face. "Better come out of it, Webster. Can we stand an attack like that?"

I gulped a wake-up pill and brought myself alert. "No, we cannot. This is our day for extinction. Our only decision now is to pick the time and place of our going. Let's get over to the Transstar ship as fast as possible."

"I'm not leaving Point Ever-ready," growled Rackril.

"Nor am I," I said. "Let's move, man."

It was a sticky hour getting back to my ship. By that time our stockade, power block and all, had been pulverized to dust behind us by the attacking weight of the eaber ships.

"Take me up, Rackril," I said as we reached the bottom of the ship. "I can't climb any more."

He pointed up dumbly. The fox face of Euben and his eternal companion grinned down at us. I shifted out a gun and took off the safety. "Take me up, Rackril."

It was almost ceremonial as Rackril and the bare half-dozen who had made it through gathered about me in the cabin. I eased painfully into my chair. Euben saw my leg and grinned. "Looks like an amputation before we can make you a useful eaber," he said.

My bullet skipped across his shoulder. "Stand over by that wall, you," I said. "You, Euben! I'm talking to you."

"You cannot order me," he said,

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but he moved back sprightlily enough. "I humor you, you see," he said. "Your stockade is gone. You have nothing but this ship. I have decided to have it gently blasted into space as worthless junk."

He gestured out of the window, where his ships were making passes now. My Transstar ship shuddered. "We can bounce it off the planet like a harmless rubber ball," he said. He gestured in back of me. "I have also returned your woman of whom you think so much. She is worthless to become an eaber."

I TURNED and saw the thin shape of what had once been Martha, huddled on my navigator's bench. It was obvious that they had treated her roughly. From the trickle of blood at her mouth, she was badly hemorrhaged. She could not live.

I stared down at her. It was hard to tell if she still recognized me. She opened her mouth slightly, and I saw the black familiar shape of the eaber reptile tongue.

I turned away, light-headed with sorrow and anger.

I jabbed a button and looked up at the tall TV. It wasn't Twelve Jackson. It was Thirteen Mayberry, Mr. Prime himself.

"What are you staring at, you old goat?" I cried, a little hysterically. "Sore because I took action to save my own hide?"

"No, you young fool. I was just wondering how long you'd permit this minor outrage to go on."

"It ends now!" I said. "Listen, Prime, I have Earth people here who demand sanctuary of Transstar."

"You have it," he said. "We will up that ship, son. No power in the universe will keep it on the ground."

"The eaber are upping it quite nicely, thanks," I said. "But we don't want it upped!"

I had to stop talking while the thudding blows of the gentle eaber rays buffeted the ship.

"Not upped?" asked Mayberry.

"No, sir, not upped. We're staying! We hold the ground that this Transstar ship rests on, in the name of Earth. It isn't much, only about fifty feet long and twenty-five wide, but it's Earth territory. No race or force may deprive us of our real estate."

"You tell him!" cried Rackril.

I turned to Euben. "Now, friend," I said, "just ease this ship back to our ground. It's Earth ground. We intend to hold it!"

"Your leg-wound has made you mad," said Euben, with a shrug. "We have decided that you are not even worthy to be eaber pets."

"Last warning, Euben! You've got yourself a Transstar situation."

Euben didn't hesitate.

He turned his hands in the air. I rolled in pain, but I kept seated. When I could see again from the

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pain, I looked up. Mayberry and Jackson and Hennessy and the forty-one division commanders of Transstar were blazing from the wall. The TV looked like a Christmas tree.

"Transstar orders this ship down, and that ground preserved in the name of Earth-alpha!" said Mayberry shortly to Euben.

Euben looked at the old man and shook his head. "Madmen," he said. "I spit on you." He spit on the screen at Mayberry. He had learned Earth insults well.

"My condition is Prime Total Red," I told Mayberry.

He leaned forward and closed the seldom-closed circuit at Transstar Prime.

"Your condition is Prime Total Red, and your ship is now command post for all Earth-alpha star power."

I LEANED over and tapped a button. We left Point Everready in a beautiful swoop that only a Transstar ship could perform. I held us high in the atmosphere over the planet and looked sadly down. It had been a beautiful planet.

I hit another button and looked up at the forty-one division commanders of Transstar. "Your orders are to destroy the eaber," I said.

I sat back. For a few seconds it was deathly silent, while Euben

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sputtered and fussed about his quick ride up over the planet. Then there was the faintest whisper of — something — back and out and behind us.

"Brace yourselves, folks," I told the Earthmen. "It's going to be loud and crowded around here!"

Euben jabbered at some kind of communicator he held in his hands. His partner likewise gabbled.

"We have a hundred and fifty thousand ships," he told me. "We'll tear you to shreds!"

I kicked a chair over at him. "Sit down. You're going to want to sit in a minute."

"Something's wrong with the ship!" cried Rackril. "It's heavy and dead!"

"We're drawing most of the broadcast power this side of Mars," I said. "In a minute you'll be glad we have that protection!"

Transstar came then. The fast patrols whisked out of black space and leaped into our atmosphere like gleaming fish that fired a rocking blast of weaponry and were gone to rendezvous, reform and pass again. They were like nothing the eaber had ever seen. They were made for a star-go like this, a burst of light, a dazzle and a thunder that came and came and came. Behind them came the light patrols and then the medium patrols and then the heavy patrols and then the fast light shock ships and then the medium shock

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ships and then the heavy shocks, wave upon wave, upon wave.

Even wrapped in our thick blanket of power we were stunned.

The planet came alight like a pearl below us. The air was jammed with sound shocks, the dazzle was like a spreading, thickening bomb of light that transfixed the eyeballs even through the dark screens I had set up.

"This is early stuff," I told Euben conversationally. "They just do a little holding till the important ships arrive. Patrols and first shocks — the usual things, you know."

Euben's mouth was open. He took time to swallow before he screamed orders to his ships below.

The patrols and shocks were suddenly past firing range. For a moment you could see the planet through the haze. Its shore lines and rivers had sickened and wavered. The eaber ships, which had been a blanket, were a tattered rag.

Hennessy, the headquarters jokester, couldn't resist a comment that probably earned him a fine. "Here comes the Cavalry," he said over the TV.

And they came.

IT was good professional stuff, geared to star action. Now we had the regulars. They came in waves of ten thousand, which was a wee bit impressive, I thought. There were the ground regulars, the medium regulars and the high regulars, each division with thirty categories, each category with its subdivisions of missiles, rockets and drones. The atmosphere screamed at us. The density of the light assumed sun proportions, and our poor little ship was like a chip on an angry ocean. Rackril had his mouth wide open. He was yelling to relieve his tension at the awesome sight; the others were lost in the overwhelming cataclysm of it. I had seen it in movies.

I poured myself a cup of tea.

"These are just the on-call regulars," I told Euben. "Of course, you realize that in a Prime Red we're getting total mobilization. We'll get slightly less than a million ships in the first hour. The rest will come later."

Euben had stopped shouting orders. He stared at me. He said something that I couldn't hear. The pounding went on for fifteen minutes; then the planet cleared. There weren't any shore lines or rivers any more. There weren't very many eaber ships.

"Stop it," he said.

I shook my head. "Sorry. A Prime Red can't be stopped easily. Once the momentum starts it has to run its course. Get set now. Here come your specials."

As the specials started to arrive, I taunted the Division Commanders. "Transstar is getting rusty. You've hardly nicked the planet.

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Can't your boys shoot properly any more?"

They came in fat and sleek. Far off they waddled and wallowed, like a bunch of old ladies hitting a bargain counter. But suddenly they were serious, close up, and I had to close the portholes against the awesome roar and light of their work. You name the ray, bullet, bomb, gas — it was there.

A half-hour later the din eased off and we looked. A large fragment of seared rock floated in space. The entire eaber fleet had long ago disappeared. So had everything else except that radioactive rock.

The last wave was the massive attack unit, very slow and lumbering compared to the others, but packed with power. The first five thousand took eager bites of the rock — and there was nothing left for the other twenty-five thousand. There was nothing left at all of Point Everready except some haze hanging below us in space. But it was too late to stop the attack.

To one side of us the returning waves began to streak by — the patrols, fast, light, medium and heavy, the shocks, first, second and third, the regulars in their streaming divisions and then the specials. Meanwhile, closer by, the second wave was coming in, first patrols and first shocks, darting a few shots to keep their hand in, at the floating dust patches.

EUBEN looked out and saw ships to his left and to his right and behind him and below him and above him and in all positions in between. It was such a heavy concentration that the stars were blocked out and, though no atmosphere existed for a non-existent planet, we were a planet of moving ships, ourselves creating a gravity and a stinking jet-flame atmosphere. It was a moving dream of hell, enough to make your mind crack open with the motion of it. It was the phantom action of a near-million star-ships — and another million on the way.

This was the total war capacity delivered to order.

What it cost in disruption and money and waste was incredible to contemplate. But that was Prime Total Red — everything we had. And it wasn't at all pointless.

"The eaber surrender," said Euben.

He stood respectfully now, his commander behind him. I guess he was thinking of the remaining eaber colonies on other planets, as there was nothing left to surrender here.

I handed him a rag. "You may now wipe the spit off my TV plate receiver," I said. He did it with alacrity.

"We will go elsewhere," said Euben's companion. "After all, space is big. There is plenty of room for two great races."

"One great race," I said.

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"Of course," he said affably. "May we have our lives spared?"

"We want you to have them — so you can take the word home."

The action outside had stilled. I opened the ports and began to move slowly towards another planet where the eaber had dwellings, as requested by the shaken Euben. Rackril patted my shoulder. "Boy, that Transstar!" he exulted.

"It's quite a lot," I admitted. I painfully inched over to the stricken Martha and squeezed her hand. I thought she squeezed back. I thought I saw a flicker of joy at our success — but there was so much eaber and so much death in her eyes it was hard to know. I had to leave her then, for the medics came aboard for her.

I began to glide down on the new planet to discharge Euben and the other eaber. "Look," I said gesturing over my shoulder. Behind us the Transstar fleet followed docilely, the mass and weight of them, guns racked and quiet, the great beast behind my tiny patrol dot.

"We'll stay around a few days in case you want to argue some more," I told Euben.

He shook his head. "That will not be necessary, my good friend. We are not stupid. In the future you'll see very little of the eaber."

THE ship settled. I opened the door and put down the ladder and Euben's companion descended, then Euben. "I am sorry—" he began.

But I thought of Martha and the dead boy who had died on Everready and the pet human and the drone eaber and the others who had suffered and died to make this creature sorry. So I planted my good foot on his rear. He crashed into his master and they both fell in the mud at the bottom of the ladder. They got up, mud-splattered, and ran like the wind towards eaberdom, capes flying out behind them.

Rackril laughed. It was the first relaxed laugh I'd heard in all that assignment. It pulled things back to normal.

I turned back to my blazing board and hit a button. "Condition White," I said, "and don't kid me that you got up all these star-ships on seventy-five seconds notice. They left Earth-alpha weeks ago. You knew from the first we were in for a Condition Prime Total Red with the eaber."

The old man grinned. "It's the agents who louse us up. We were afraid you'd observe so long that you'd start the action on an orange and build a whole new tradition — Ten."

Ten! I remembered then that anybody who ordered a CPTR was automatically up for Ten rank and sent to a nice, soft job at Prime.

"Save me a wide, plump chair at the TV console at Prime," I said.

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"Get me a desk-sized teapot, and a soft cushion for a bum leg."

I turned the ship around and started to lead the massive fleet home.

I stared at the far-flung stars of space as I drank my tea, eyes blurred a little with tears. I was an organization man. The organization was all I had, or would ever have. It didn't seem enough. Even the playing of the Transstar victory song left me depressed.

Then suddenly the light broke.

A Transstar agent is both the most and the least important of men. He is a fireman who puts out fires — a hero, but a shadow. A master sometimes, but mostly a servant. I winked at Mayberry on the screen. They saw I knew and winked back. They had finally lost a pompous, Transstar-impressed agent and gained a useful career man.

They were satisfied.

So was I.

— RAYMOND E. BANKS

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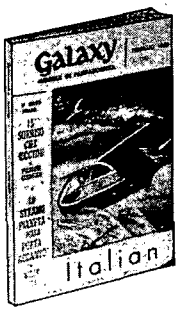
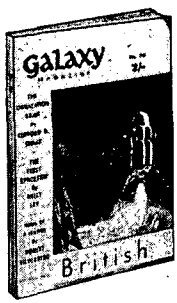
Galaxy... AROUND THE WORLD





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By CHARLES V. DE VET

monkey on his back

Under the cloud of cast-off identities

lay the shape of another man —

was it himself?

Illustrated by DILLON

HE was walking endlessly down a long, glass-walled corridor. Bright sunlight slanted in through one wall, on the blue knapsack across his shoulders. Who he was, and what he was doing here, was clouded. The truth lurked in some corner of his consciousness, but it was not reached by surface awareness.

The corridor opened at last into a large high-domed room, much like a railway station or an air terminal. He walked straight ahead.

At the sight of him a man leaning negligently against a stone pillar, to his right but within vision, straightened and barked an order to him, "Halt!" He lengthened his stride but gave no other sign.

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Two men hurried through a doorway of a small anteroom to his left, calling to him. He turned away and began to run.

Shouts and the sound of charging feet came from behind him. He cut to the right, running toward the escalator to the second floor. Another pair of men were hurrying down, two steps at a stride. With no break in pace he veered into an opening beside the escalator.

At the first turn he saw that the aisle merely circled the stairway, coming out into the depot again on the other side. It was a trap. He glanced quickly around him.

At the rear of the space was a row of lockers for traveler use. He slipped a coin into a pay slot, opened the zipper on his bag and pulled out a flat briefcase. It took him only a few seconds to push the case into the compartment, lock it and slide the key along the floor beneath the locker.

There was nothing to do after that — except wait.

The men pursuing him came hurtling around the turn in the aisle. He kicked his knapsack to one side, spreading his feet wide with an instinctive motion.

Until that instant he had intended to fight. Now he swiftly reassessed the odds. There were five of them, he saw. He should be able to incapacitate two or three and break out. But the fact that they had been expecting him meant that others would very probably be waiting outside. His best course now was to sham ignorance. He relaxed.

He offered no resistance as they reached him.

They were not gentle men. A tall ruffian, copper-brown face damp with perspiration and body oil, grabbed him by the jacket and slammed him back against the lockers. As he shifted his weight to keep his footing someone drove a fist into his face. He started to raise his hands; and a hard flat object crashed against the side of his skull.

The starch went out of his legs.

"DO you make anything out of it?" the psychoanalyst Milton Bergstrom, asked.

John Zarwell shook his head. "Did I talk while I was under?"

"Oh, yes. You were supposed to. That way I follow pretty well what you're reenacting."

"How does it tie in with what I told you before?"

Bergstrom's neat-boned, fair-skinned face betrayed no emotion other than an introspective stillness of his normally alert gaze. "I see no connection," he decided, his words once again precise and meticulous. "We don't have enough to go on. Do you feel able to try another comanalysis this afternoon yet?"

"I don't see why not." Zarwell

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opened the collar of his shirt. The day was hot, and the room had no air conditioning, still a rare luxury on St. Martin's. The office window was open, but it let in no freshness, only the mildly rank odor that pervaded all the planet's habitable area.

"Good." Bergstrom rose. "The serum is quite harmless, John." He maintained a professional diversionary chatter as he administered the drug. "A scopolamine derivative that's been well tested."

The floor beneath Zarwell's feet assumed abruptly the near transfluent consistency of a damp sponge. It rose in a foot-high wave and rolled gently toward the far wall.

Bergstrom continued talking, with practiced urbanity. "When psychiatry was a less exact science," his voice went on, seeming to come from a great distance, "a doctor had to spend weeks, sometimes months or years interviewing a patient. If he was skilled enough, he could sort the relevancies from the vast amount of chaff. We are able now, with the help of the serum, to confine our discourses to matters cogent to the patient's trouble."

The floor continued its transmutation, and Zarwell sank deep into viscous depths. "Lie back and relax. Don't . . ."

The words tumbled down from above. They faded, were gone.

ZARWELL FOUND himself standing on a vast plain. There was no sky above, and no horizon in the distance. He was in a place without space or dimension. There was nothing here except himself — and the gun that he held in his hand.

A weapon beautiful in its efficient simplicity.

He should know all about the instrument, its purpose and workings, but he could not bring his thoughts into rational focus. His forehead creased with his mental effort.

Abruptly the unreality about him shifted perspective. He was approaching — not walking, but merely shortening the space between them — the man who held the gun. The man who was himself. The other "himself" drifted nearer also, as though drawn by a mutual attraction.

The man with the gun raised his weapon and pressed the trigger.

With the action the perspective shifted again. He was watching the face of the man he shot jerk and twitch, expand and contract. The face was unharmed, yet it was no longer the same. No longer his own features.

The stranger face smiled approvingly at him.

"ODD," BERGSTROM said. He brought his hands up and joined the tips of his fingers against his chest. "But it's another piece in the

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jig-saw. In time it will fit into place." He paused. "It means no more to you than the first, I suppose?"

"No," Zarwell answered.

He was not a talking man, Bergstrom reflected. It was more than reticence, however. The man had a hard granite core, only partially concealed by his present perplexity. He was a man who could handle himself well in an emergency.

Bergstrom shrugged, dismissing his strayed thoughts. "I expected as much. A quite normal first phase of treatment." He straightened a paper on his desk. "I think that will be enough for today. Twice in one sitting is about all we ever try. Otherwise some particular episode might cause undue mental stress, and set up a block." He glanced down at his appointment pad. "Tomorrow at two, then?"

Zarwell grunted acknowledgment and pushed himself to his feet, apparently unaware that his shirt clung damply to his body.

THE sun was still high when Zarwell left the analyst's office. The white marble of the city's buildings shimmered in the afternoon heat, squat and austere as giant tree trunks, pock-marked and gray-mottled with windows. Zarwell was careful not to rest his hand on the flesh searing surface of the stone.

The evening meal hour was approaching when he reached the Flats, on the way to his apartment. The streets of the old section were near-deserted. The only sounds he heard as he passed were the occasional cry of a baby, chronically uncomfortable in the day's heat, and the lowing of imported cattle waiting in a nearby shed to be shipped to the country.

All St. Martin's has a distinctive smell, as of an arid dried-out swamp, with a faint taint of fish. But in the Flats the odor changes. Here is the smell of factories, warehouses, and trading marts; the smell of stale cooking drifting from the homes of the laborers and lower class techmen who live there.

Zarwell passed a group of smaller children playing a desultory game of lic-lic for pieces of candy and cigarettes. Slowly he climbed the stairs of a stone flat. He prepared a supper for himself and ate it without either enjoyment or distaste. He lay down, fully clothed, on his bed. The visit to the analyst had done nothing to dispel his ennui.

The next morning when Zarwell awoke he lay for a moment, unmoving. The feeling was there again, like a scene waiting only to be gazed at directly to be perceived. It was as though a great wisdom lay at the edge of understanding. If he rested quietly it would all come to him. Yet always, when his mind lost its sleep-induced

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lethargy, the moment of near understanding slipped away.

This morning, however, the sense of disorientation did not pass with full wakefulness. He achieved no understanding, but the strangeness did not leave as he sat up.

He gazed about him. The room did not seem to be his own. The furnishings, and the clothing he observed in a closet, might have belonged to a stranger.

He pulled himself from his blankets, his body moving with mechanical reaction. The slippers into which he put his feet were larger than he had expected them to be. He walked about the small apartment. The place was familiar, but only as it would have been if he had studied it from blueprints, not as though he lived there.

The feeling was still with him when he returned to the psychoanalyst.

THE scene this time was more kaleidoscopic, less personal.

A village was being ravaged. Men struggled and died in the streets. Zarwell moved among them, seldom taking part in the individual clashes, yet a moving force in the conflict.

The background changed. He understood that he was on a different world.

Here a city burned. Its resistance was nearing its end. Zarwell was riding a shaggy pony outside a high wall surrounding the stricken metropolis. He moved in and joined a party of short, bearded men, directing them as they battered at the wall with a huge log mounted on a many-wheeled truck.

The log broke a breach in the concrete and the besiegers charged through, carrying back the defenders who sought vainly to plug the gap. Soon there would be rioting in the streets again, plundering and killing.

Zarwell was not the leader of the invaders, only a lesser figure in the rebellion. But he had played a leading part in the planning of the strategy that led to the city's fall. The job had been well done.

Time passed, without visible break in the panorama. Now Zarwell was fleeing, pursued by the same bearded men who had been his comrades before. Still he moved with the same firm purpose, vigilant, resourceful, and well prepared for the eventuality that had befallen. He made his escape without difficulty.

He alighted from a space ship on still another world — another shift in time — and the atmosphere of conflict engulfed him.

Weary but resigned he accepted it, and did what he had to do . . .

BERGSTROM WAS regarding him with speculative scrutiny. "You've had quite a past, apparently," he observed.

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Zarwell smiled with mild embarrassment. "At least in my dreams."

"Dreams?" Bergstrom's eyes widened in surprise. "Oh, I beg your pardon. I must have forgotten to explain. This work is so routine to me that sometimes I forget it's all new to a patient. Actually what you experienced under the drug were not dreams. They were recollections of real episodes from your past."

Zarwell's expression became wary. He watched Bergstrom closely. After a minute, however, he seemed satisfied, and he let himself settle back against the cushion of his chair. "I remember nothing of what I saw," he observed.

"That's why you're here, you know," Bergstrom answered. "To help you remember."

"But everything under the drug is so . . ."

"Haphazard? That's true. The recall episodes are always purely random, with no chronological sequence. Our problem will be to reassemble them in proper order later. Or some particular scene may trigger a complete memory return.

"It is my considered opinion," Bergstrom went on, "that your lost memory will turn out to be no ordinary amnesia. I believe we will find that your mind has been tampered with."

"Nothing I've seen under the drug fits into the past I do remember."

"That's what makes me so certain," Bergstrom said confidently. "You don't remember what we have shown to be true. Conversely then, what you think you remember must be false. It must have been implanted there. But we can go into that later. For today I think we have done enough. This episode was quite prolonged."

"I won't have any time off again until next week end," Zarwell reminded him.

"That's right." Bergstrom thought for a moment. "We shouldn't let this hang too long. Could you come here after work tomorrow?"

"I suppose I could."

"Fine," Bergstrom said with satisfaction. "I'll admit I'm considerably more than casually interested in your case by this time."

A WORK truck picked Zarwell up the next morning and he rode with a tech crew to the edge of the reclam area. Beside the belt bringing ocean muck from the converter plant at the seashore his bulldozer was waiting.

He took his place behind the drive wheel and began working dirt down between windbreakers anchored in the rock. Along a makeshift road into the badlands trucks brought crushed lime and phosphorus to supplement the ocean sediment. The progress of life from the sea to the land was a mechani-

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cal process of this growing world.

Nearly two hundred years ago, when Earth established a colony on St. Martin's, the land surface of the planet had been barren. Only its seas thrived with animal and vegetable life. The necessary machinery and technicians had been supplied by Earth, and the long struggle began to fit the world for human needs. When Zarwell arrived, six months before, the vitalized area already extended three hundred miles along the coast, and sixty miles inland. And every day the progress continued. A large percentage of the energy and resources of the world were devoted to that essential expansion.

The reclam crews filled and sodded the sterile rock, planted binding grasses, grain and trees, and diverted rivers to keep it fertile. When there were no rivers to divert they blasted out springs and lakes in the foothills to make their own. Biologists developed the necessary germ and insect life from what they found in the sea. Where that failed, they imported microorganisms from Earth.

Three rubber-tracked crawlers picked their way down from the mountains until they joined the road passing the belt. They were loaded with ore that would be smelted into metal for depleted Earth, or for other colonies short of minerals. It was St. Martin's only export thus far.

Zarwell pulled his sun helmet lower, to better guard his hot, dry features. The wind blew continuously on St. Martin's, but it furnished small relief from the heat. After its three-thousand-mile journey across scorched sterile rock, it sucked the moisture from a man's body, bringing a membrane-shrinking dryness to the nostrils as it was breathed in. With it came also the cloying taste of limestone in a worker's mouth.

Zarwell gazed idly about at the other laborers. Fully three-quarters of them were beri-rabza ridden. A cure for the skin fungus had not yet been found; the men's faces and hands were scabbed and red. The colony had grown to near self-sufficiency, would soon have a moderate prosperity, yet they still lacked adequate medical and research facilities.

Not all the world's citizens were content.

Bergstrom was waiting in his office when Zarwell arrived that evening.

HE was lying motionless on a hard cot, with his eyes closed, yet with his every sense sharply quickened. Tentatively he tightened small muscles in his arms and legs. Across his wrists and thighs he felt straps binding him to the cot.

"So that's our big, bad man," a coarse voice above him observed

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caustically. "He doesn't look so tough now, does he?"

"It might have been better to kill him right away," a second, less confident voice said. "It's supposed to be impossible to hold him."

"Don't be stupid. We just do what we're told. We'll hold him."

"What do you think they'll do with him?"

"Execute him, I suppose," the harsh voice said matter-of-factly. "They're probably just curious to see what he looks like first. They'll be disappointed."

Zarwell opened his eyes a slit to observe his surroundings.

It was a mistake. "He's out of it," the first speaker said, and Zarwell allowed his eyes to open fully.

The voice, he saw, belonged to the big man who had bruised him against the locker at the spaceport. Irrelevantly he wondered how he knew now that it had been a spaceport.

His captor's broad face jeered down at Zarwell. "Have a good sleep?" he asked with mock solicitude. Zarwell did not deign to acknowledge that he heard.

The big man turned. "You can tell the Chief he's awake," he said. Zarwell followed his gaze to where a younger man, with a blond lock of hair on his forehead, stood behind him. The youth nodded and went out, while the other pulled a chair up to the side of Zarwell's cot.

While their attention was away from him Zarwell had unobtrusively loosened his bonds as much as possible with arm leverage. As the big man drew his chair nearer, he made the hand farthest from him tight and compact and worked it free of the leather loop. He waited.

The big man belched. "You're supposed to be great stuff in a situation like this," he said, his smoke-tan face splitting in a grin that revealed large square teeth. "How about giving me a sample?"

"You're a yellow-livered bastard," Zarwell told him.

The grin faded from the oily face as the man stood up. He leaned over the cot — and Zarwell's left hand shot up and locked about his throat, joined almost immediately by the right.

The man's mouth opened and he tried to yell as he threw himself frantically backward. He clawed at the hands about his neck. When that failed to break the grip he suddenly reversed his weight and drove his fist at Zarwell's head.

Zarwell pulled the struggling body down against his chest and held it there until all agitated movement ceased. He sat up then, letting the body slide to the floor.

The straps about his thighs came loose with little effort.

THE analyst dabbed at his upper lip with a handkerchief. "The episodes are beginning to tie together," he said, with an attempt at

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nonchalance. "The next couple should do it."

Zarwell did not answer. His memory seemed on the point of complete return, and he sat quietly, hopefully. However, nothing more came and he returned his attention to his more immediate problem.

Opening a button on his shirt, he pulled back a strip of plastic cloth just below his rib cage and took out a small flat pistol. He held it in the palm of his hand. He knew now why he always carried it.

Bergstrom had his bad moment. "You're not going to . . ." he began at the sight of the gun. He tried again. "You must be joking."

"I have very little sense of humor," Zarwell corrected him.

"You'd be foolish!"

Bergstrom obviously realized how close he was to death. Yet surprisingly, after the first start, he showed little fear. Zarwell had thought the man a bit soft, too adjusted to a life of ease and some prestige to meet danger calmly. Curiosity restrained his trigger finger.

"Why would I be foolish?" he asked. "Your Meninger oath of inviolable confidence?"

Bergstrom shook his head. "I know it's been broken before. But you need me. You're not through, you know. If you killed me you'd still have to trust some other analyst."

"Is that the best you can do?"

"No." Bergstrom was angry now. "But use that logical mind you're supposed to have! Scenes before this have shown what kind of man you are. Just because this last happened here on St. Martin's makes little difference. If I was going to turn you in to the police, I'd have done it before this."

Zarwell debated with himself the truth of what the other had said. "Why didn't you turn me in?" he asked.

"Because you're no mad-dog killer!" Now that the crisis seemed to be past, Bergstrom spoke more calmly, even allowed himself to relax. "You're still pretty much in the fog about yourself. I read more in those comanalyses than you did. I even know who you are!"

Zarwell's eyebrows raised.

"Who am I?" he asked, very interested now. Without attention he put his pistol away in a trouser pocket.

Bergstrom brushed the question aside with one hand. "Your name makes little difference. You've used many. But you are an idealist. Your killings were necessary to bring justice to the places you visited. By now you're almost a legend among the human worlds. I'd like to talk more with you on that later."

While Zarwell considered, Bergstrom pressed his advantage. "One more scene might do it," he said. "Should we try again — if you trust me, that is?"

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Zarwell made his decision quickly. "Go ahead," he answered.

ALL Zarwell's attention seemed on the cigar he lit as he rode down the escalator, but he surveyed the terminal carefully over the rim of his hand. He spied no suspicious loungers.

Behind the escalator he groped along the floor beneath the lockers until he found his key. The briefcase was under his arm a minute later.

In the basement lave he put a coin in the pay slot of a private compartment and went in.

As he zipped open the briefcase he surveyed his features in the mirror. A small muscle at the corner of one eye twitched spasmodically. One cheek wore a frozen quarter smile. Thirty-six hours under the paralysis was longer than advisable. The muscles should be rested at least every twenty hours.

Fortunately his natural features would serve as an adequate disguise now.

He adjusted the ring setting on the pistol-shaped instrument that he took from his case, and carefully rayed several small areas of his face, loosening muscles that had been tight too long. He sighed gratefully when he finished, massaging his cheeks and forehead with considerable pleasure. Another glance in the mirror satisfied him with the changes that had been made. He turned to his briefcase again and exchanged the gun for a small syringe, which he pushed into a trouser pocket, and a single-edged razor blade.

Removing his fiber-cloth jacket he slashed it into strips with the razor blade and flushed it down the disposal bowl. With the sleeves of his blouse rolled up he had the appearance of a typical workman as he strolled from the compartment.

Back at the locker he replaced the briefcase and, with a wad of gum, glued the key to the bottom of the locker frame.

One step more. Taking the syringe from his pocket, he plunged the needle into his forearm and tossed the instrument down a waste chute. He took three more steps and paused uncertainly.

When he looked about him it was with the expression of a man waking from a vivid dream.

"QUITE ingenious," Graves murmured admiringly. "You had your mind already preconditioned for the shot. But why would you deliberately give yourself amnesia?"

"What better disguise than to believe the part you're playing?"

"A good man must have done that job on your mind," Bergstrom commented. "I'd have hesitated to try it myself. It must have taken a lot of trust on your part."

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"Trust and money," Zarwell said drily.

"Your memory's back then?"

Zarwell nodded.

"I'm glad to hear that," Bergstrom assured him. "Now that you're well again I'd like to introduce you to a man named Vernon Johnson. This world . . ."

Zarwell stopped him with an upraised hand. "Good God, man, can't you see the reason for all this? I'm tired. I'm trying to quit."

"Quit?" Bergstrom did not quite follow him.

"It started on my home colony," Zarwell explained listlessly. "A gang of hoods had taken over the government. I helped organize a movement to get them out. There was some bloodshed, but it went quite well. Several months later an unofficial envoy from another world asked several of us to give them a hand on the same kind of job. The political conditions there were rotten. We went with him. Again we were successful. It seems I have a kind of genius for that sort of thing."

He stretched out his legs and regarded them thoughtfully. "I learned then the truth of Russell's saying: 'When the oppressed win their freedom they are as oppressive as their former masters.' When they went bad, I opposed them. This time I failed. But I escaped again. I have quite a talent for that also.

"I'm not a professional do-gooder." Zarwell's tone appealed to Bergstrom for understanding. "I have only a normal man's indignation at injustice. And now I've done my share. Yet, wherever I go, the word eventually gets out, and I'm right back in a fight again. It's like the proverbial monkey on my back. I can't get rid of it."

He rose. "That disguise and memory planting were supposed to get me out of it. I should have known it wouldn't work. But this time I'm not going to be drawn back in! You and your Vernon Johnson can do your own revolting. I'm through!"

Bergstrom did not argue as he left.

RESTLESSNESS drove Zarwell from his flat the next day —a legal holiday on St. Martin's. At a railed-off lot he stopped and loitered in the shadow of an adjacent building watching workmen drilling an excavation for a new structure.

When a man strolled to his side and stood watching the workmen, he was not surprised. He waited for the other to speak.

"I'd like to talk to you, if you can spare a few minutes," the stranger said.

Zarwell turned and studied the man without answering. He was medium tall, with the body of an athlete, though perhaps ten year

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beyond the age of sports. He had a manner of contained energy. "You're Johnson?" he asked.

The man nodded.

Zarwell tried to feel the anger he wanted to feel, but somehow it would not come. "We have nothing to talk about," was the best he could manage.

"Then will you just listen? After, I'll leave — if you tell me to."

Against his will he found himself liking the man, and wanting at least to be courteous. He inclined his head toward a curb wastebox with a flat top. "Should we sit?"

Johnson smiled agreeably and they walked over to the box and sat down.

"When this colony was first founded," Johnson began without preamble, "the administrative body was a governor, and a council of twelve. Their successors were to be elected biennially. At first they were. Then things changed. We haven't had an election now in the last twenty-three years. St. Martin's is beginning to prosper. Yet the only ones receiving the benefits are the rulers. The citizens work twelve hours a day. They are poorly housed, poorly fed, poorly clothed. They . . ."

Zarwell found himself not listening as Johnson's voice went on. The story was always the same. But why did they always try to drag him into their troubles?

Why hadn't he chosen some other world on which to hide?

The last question prompted a new thought. Just why had he chosen St. Martin's? Was it only a coincidence? Or had he, subconciously at least, picked this particular world? He had always considered himself the unwilling subject of glib persuaders . . . but mightn't some inner compulsion of his own have put the monkey on his back?

". . . and we need your help." Johnson had finished his speech.

Zarwell gazed up at the bright sky. He pulled in a long breath, and let it out in a sigh.

"What are your plans so far?" he asked wearily.

—CHARLES V. DE VET

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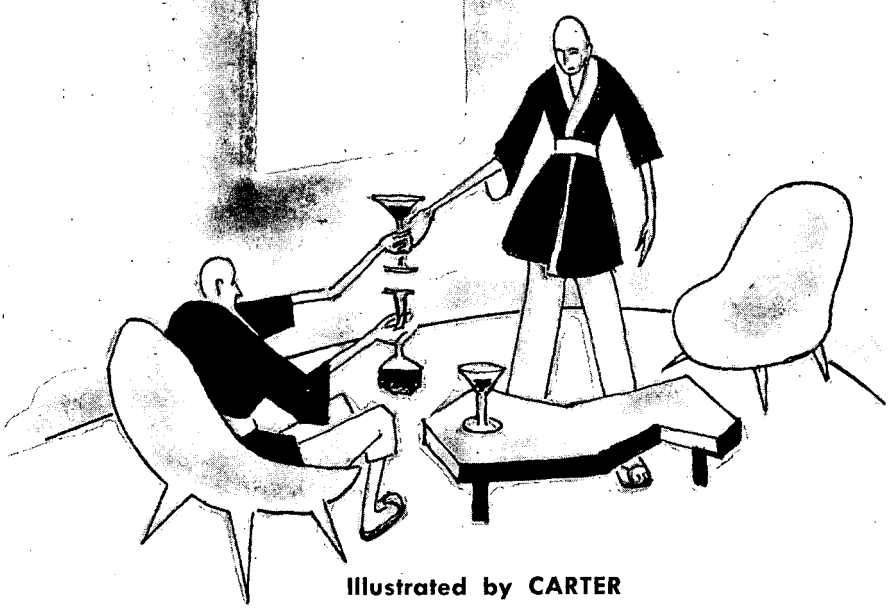
Mars had gifts to offer and Earth had much in return — if delivery could be arranged!

EARTHMEN BEARING GIFTS

By FREDRIC BROWN



Illustrated by CARTER

DHAR Ry sat alone in his room, meditating. From outside the door he caught a thought wave equivalent to a knock, and, glancing at the door, he willed it to slide open.

It opened. "Enter, my friend," he said. He could have projected the idea telepathically; but with only two persons present, speech was more polite.

Ejon Khee entered. "You are up late tonight, my leader," he said.

"Yes, Khee. Within an hour the Earth rocket is due to land, and I wish to see it. Yes, I know, it will

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land a thousand miles away, if their calculations are correct. Beyond the horizon. But if it lands even twice that far the flash of the atomic explosion should be visible. And I have waited long for first contact. For even though no Earthman will be on that rocket, it will still be first contact — for them. Of course our telepath teams have been reading their thoughts for many centuries, but — this will be the first *physical* contact between Mars and Earth."

Khee made himself comfortable on one of the low chairs. "True," he said. "I have not followed recent reports too closely, though. Why are they using an atomic warhead? I know they suppose our planet is uninhabited, but still—"

"They will watch the flash through their lunar telescopes and get a — what do they call it? — a spectroscopic analysis. That will tell them more than they know now (or think they know; much of it is erroneous) about the atmosphere of our planet and the composition of its surface. It is — call it a sighting shot, Khee. They'll be here in person within a few oppositions. And then—"

Mars was holding out, waiting for Earth to come. What was left of Mars, that is; this one small city of about nine hundred beings. The civilization of Mars was older than that of Earth, but it was a dying one. This was what remained of it: one city, nine hundred people. They were waiting for Earth to make contact, for a selfish reason and for an unselfish one.

MARTIAN civilization had developed in a quite different direction from that of Earth. It had developed no important knowledge of the physical sciences, no technology. But it had developed social sciences to the point where there had not been a single crime, let alone a war, on Mars for fifty thousand years. And it had developed fully the parapsychological sciences of the mind, which Earth was just beginning to discover.

Mars could teach Earth much. How to avoid crime and war to begin with. Beyond those simple things lay telepathy, telekinesis, empathy . . .

And Earth would, Mars hoped, teach them something even more valuable to Mars: how, by science and technology — which it was too late for Mars to develop now, even if they had the type of minds which would enable them to develop these things — to restore and rehabilitate a dying planet, so that an otherwise dying race might live and multiply again.

Each planet would gain greatly, and neither would lose.

And tonight was the night when Earth would make its first sighting shot. Its next shot, a rocket containing Earthmen, or at least an

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Earthman, would be at the next opposition, two Earth years, or roughly four Martian years, hence. The Martians knew this, because their teams of telepaths were able to catch at least some of the thoughts of Earthmen, enough to know their plans. Unfortunately, at that distance, the connection was one-way. Mars could not ask Earth to hurry its program. Or tell Earth scientists the facts about Mars' composition and atmosphere which would have made this preliminary shot unnecessary.

Tonight Ry, the leader (as nearly as the Martian word can be translated), and Khee, his administrative assistant and closest friend, sat and meditated together until the time was near. Then they drank a toast to the future — in a beverage based on menthol, which had the same effect on Martians as alcohol on Earthmen — and climbed to the roof of the building in which they had been sitting. They watched toward the north, where the rocket should land. The stars shone brilliantly and unwinkingly through the atmosphere.

IN Observatory No. 1 on Earth's moon, Rog Everett, his eye at the eyepiece of the spotter scope, said triumphantly, "Thar she blew, Willie. And now, as soon as the films are developed, we'll know the score on that old planet Mars." He straightened up — there'd be no more to see now — and he and Willie Sanger shook hands solemnly. It was an historical occasion.

"Hope it didn't kill anybody. Any Martians, that is. Rog, did it hit dead center in Syrtis Major?"

"Near as matters. I'd say it was maybe a thousand miles off, to the south. And that's damn close on a fifty-million-mile shot. Willie, do you really think there are any Martians?"

Willie thought a second and then said, "No."

He was right.

— FREDRIC BROWN

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GALAXY'S 5 Star Shelf

THE MAN WHO WOULD BE GOD by Haakon Chevalier, G. P. Putnam's Sons, N. Y., $4.95

LIKE ALL science and fiction, science fiction is tied inexorably to the era in which it is written, and this story could no more have been done a generation ago than it could have avoided being written now. Its frightful weapons exist. What is done a generation ago than it could speculation — but whether Chevalier's remorsely logical speculation is considered believable is the real answer to the deadliest of questions: has so much hindsight improved this generation's foresight?

Chevalier tests smug replies with an acid that instantly dissolves self-delusion. His central character is a physicist, an ardent fellow-traveler—and a genius. The military needs him to coordinate the super-bomb project. His political background must be whitewashed pure.

Impossible? Was the real-life example that the story parallels impossible?

No, Chevalier's character is all too possible, and so is what happens to him. He becomes convinced that only he can save the world from

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atomic suicide. Where that belief leads to has the shattering inevitability of true tragedy, the personal tragedy of men whose compromises with principle beget ever more compromises — the end-product of the principle that the end justifies the means.

Rating: *****

ROBOT HUNT by Roger Lee Vernon. Avalon Books, N. Y. $2.95.

LOADED WITH action, mystery and intrigue, this book unfortunately goes off in the author's face.

Vernon's future world is inventive in the pattern set by Hugo Gernsback. World War III has been averted by the perfection of the force screen, available in every size, from personal to the large, economy continent-size which enables nations to hide and to pull in the holes after them. After years of stalemate, America has developed robots that can pass as human, and the "Equalizer," the ultimate force-screen penetrant.

The plot is built on the theft of the plans by a rogue robot — which could not have had access to the plans or stolen them in the first place.

Rating: **½

THE MOON CAR by Hermann Oberth. Harper and Bros., N. Y., $2.95

WHEN WE get to the Moon, above-surface flight will be out of the question, and immense crevasses may make surface travel equally unfeasible. Prof. Oberth, at least godfather if not father of rocket flight, has put his still fertile brain to work on the problem and proposes a unipedal vehicle that can do a bit of both.

First offered in his recent *Man Into Space, Moon Car* carries these thoughts into design and construction — two vital steps closer to field tests on the Moon itself.

SKYPORT by Curt Siodmak. Crown Publishers, N. Y., $3.50

FIFTEEN YEARS is a long time to wait for the creator of *Donovan's Brain* to put typewriter to paper. *Skyport* is a delight to read — so much so that one could almost wish Siodmak were not so successful a Hollywood writer-director.

The skyport itself is the fictional evolution of Wernher von Braun's wheel-like space station, 1075 miles up, so that it revolves orbitwise in two hours. The deluxe-space-hotel idea, brainchild of physicist Lee Powers, requires considerable selling to the corporate giants necessary to finance and erect such a structure. Once sold, the financial maneuverings and machinations become as hazardous to the project as the technical problems.

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The novel's one weak point is the assumption that the U. S. would permit the first space station to be a purely civilian venture, put up there as the latest link of the Wharton hotel chain. If you can get past that, however, the superlatively imaginative wedding of finance and science engineered by Siodmak will repay your charity tenfold.

Rating: ****½

THE QUEST OF EXCALIBUR by Leonard Wibberley. G. P. Putnam's Sons, N. Y., $3.50

THE WIZARD Merlin has had numerous fictional revivals, in marked contrast to his liege, Arthur Pendragon. As chronicler of their joint return, Wibberley, past-master of rib-tickling irony, seemed nothing short of ideal. But almost all the provocative situations conjured up by him bewilderingly remain unexplored.

The yarn concerns itself with poor Princess Pamela, heiress to the throne of England, and her attempt to run away from her velvet prison. She inveigles a part-time truckdriver, an American Arthurian student, into helping her escape from Buckingham Palace. Unfortunately, all this happens after a most promising opening in which an English ditchdigger is accused of poaching rabbits on the last scrap of land owned by a destitute baronet. The baronet's permission, granted two hours after his death, is being challenged in a court of law.

King Arthur, summoned by the ditchdigger and the ghost of Sir Timothy, embarks on a Don Quixote quest via ancient Rolls Royce for the sword Excalibur.

If only Princess Pam had stayed in her nice, cool palace, what a heart-warming yarn this might have been!

Rating: ***

YOU AND THE WORLD TO COME by Maxwell Droke. Harper and Bros., N. Y., $3.50

DROKE'S FORBEARANCE is phenomenal: he blueprints not a single fantastic invention. Instead, he follows the threads of sociological trends into the immediate future, for his concern is with tomorrow, not the Millenium.

His subjects — Working Wives, Senior Citizens, Dwindling Families, Increased Leisure, The Schooled Generation, etc. — are objects of gently humorous profundity.

THE DARK DESTROYERS by Manly Wade Wellman. Avalon Books, N. Y., $2.95

OVER TWENTY years ago, Wellman offered the then startling hypothesis that it is possible to

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harass an overwhelming enemy into defeat by the adoption of merciless nuisance tactics. A tragically few short years later, his theory was put to practical test in Occupied France, Norway, Yugoslavia, Russia and the Philippines. Although in no instance was the conqueror ousted, logistic disruption laid the occupiers open to easier invasion.

Wellman's yarn suffers from defects common to the period — varicolored "rays" and an embarrassing love story. As an adventure yarn, though, it stands quite succuessfully on its own, as well as having the added interest engendered by any prototype.

Rating: ***½

THE WAR AGAINST THE RULL by A. E. van Vogt. Simon and Schuster, N. Y., $3.50

OLD-TIMERS WILL remember how van Vogt burst into SF prominence with his exceptional stories of alien intelligences back in the '30s. Since then, few of his yarns have escaped the overabundance of tortuous plotting that characterizes his major works. Among these few are several that appeared sporadically in *Astounding* during Decade Forty. They have been assembled here into novel form without undue distortion and serve as a good example of how van Vogt writes when not doing wheel-within-wheel plotting.

Rulls, wormlike monstrosities, can control light vibrations to enable themselves to masquerade as humans. Fantastic safeguards must be exercised and fantastic situations and monsters arise until the war's final resolution.

Rating: ***½

THE CONQUEST OF SPACE, Dr. Wernher von Braun and Willy Ley. Vox Productions, Inc., N. Y.

WHEN TWO men do absolutely nothing but gab for four whole sides of two LP disks and still succeed in mesmerizing the listener into rapt attention, a considerable accomplishment has been achieved. Von Braun and Ley bat the breeze back and forth in lively fashion and in the doing give the eavesdropper a basic fill-in on virtually all the inside story of rocket development in our generation. And who knows better than these two charter members of the old German Interplanetary Society?

A *don't-miss* item.

COUNTDOWN by Jimmie Haskell and Orchestra. Imperial Records, Inc., Hollywood

AS LONG as your turntable is spinning anyway, I recommend trying this platter of interesting effects combined with some enjoyable genuine music. Sampling:

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Weightless Blues, Asteroid Hop, Moonlight Cha-cha-cha.

JUNIOR EDUCATION CORNER

EXPLORING SCIENCE by Jonathan N. Leonard. World Publishing Co., Cleveland & N. Y., $4.95

TO MY mind, there is no finer single volume suitable to serve as an introduction to science in general and to the study of mankind in particular. The excellent and numerous illustrations are certain to arouse curiosity that the well-integrated text will stimulate and channel. Ages 10 and up.

SIR ISAAC NEWTON by Beulah Tannenbaum and Myra Stillman. Whittlesey House, N. Y., $3.00

NEWTON IS a prime example of the few specimens to date of *Homo* Genius. It is almost inconceivable that his amazing mind formulated the Theory of Optics, Universal Gravitation, the Three Laws of Motion and the Calculus — all before he reached the age of twenty-five.

The authors' work is admirably documented and yet contains enough personal trivia to breathe humanity into a charter member of Mankind's All-Star Team. For any age, but teen-agers especially.

GALACTIC DERELICT by Andre Norton. World Publishing Co., Cleveland & N. Y., $3.00

ALL THE classic elements that make a good juvenile — or a good adult book, for that matter — are present in full measure in *Galactic Derelict*. It suffers not at all in being a sequel to Miss Norton's excellent *Time Traders*.

The U. S. Army's race with the Russians through and against Time remains her background. Both search for abandoned wrecks of a race that had interstellar travel back in Man's infancy.

Travis Fox, young Apache, joins Ross Murdock and Dr. Gordon Ashe, time agents of *Trader*, in attempting the transfer, intact, of an alien ship through 20,000 years to the present. Inadvertently, controls are activated and the group is launched on an involuntary galactic tour. Their efforts to return to Here and Now constitute a top-notch science-adventure yarn.

Rating (for youngsters): *****

— FLOYD C. GALE

★ ★ ★ ★ ★

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By JOHN RACKHAM

IDEA MAN

Illustrated by DILLON

ACCORDING to this morning's paper, Arthur Penfold stands a good chance of being in the next Honours List. Sir Arthur — and I knew him when he was a nobody, when he was a third-rate putterer, working in the electronic back-room laboratory research of Ferdinand's Radio and Television. We had a lot in common, he and I, that day we met. He'd had a bright idea, and fumbled it, and he had been sacked. The same thing had happened to me.

He, having no idea what to do next, had gravitated to a little pub at the end of the road where he had spent most of his working life. I had followed my nose there, too —and there the resemblance ends. Ideas are my stock in trade, and I had plenty of ideas what to do next. My search for beer was to drown a strong sense of injustice.

Who wouldn't? I mean, if you'd

The saddest words of all are these: I work my head to the bone and he takes the glory!

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uncorked a twenty-four-carat, jeweled-in-every-hole idea, and seen someone else muff it, like a mutton head — and then been blamed for the whole thing — wouldn't you? It's bad enough when a cracker of an idea goes sour, but to have him blame *me* for it!

"You're fired!" Robel had said. "You're an idea man. You should have thought of this and you didn't. You're fired!"

As if I could foresee everything! All right, I *am* an idea man, and don't ever let anybody sell you the idea that ideas sell themselves — they don't. That old line about building a better mousetrap just isn't so. Getting ideas is tough. Getting them sold, at a profit, is what separates the dreamers from the doers. And getting blamed for somebody else's goof — that was the end!

So I was boiling. There's six foot three of me, square, and none of it fat, so, when I boil, it looks sort of scary. Not that I was thinking of anything like that when I shoved my way into this pub. I was making resolutions. Never again, I thought. Next time I get a good idea, I'll push it, promote it, and profit from it myself. And I ran into Penfold, never dreaming that there was my next time waiting for me.

I could cry, just thinking of it. Penfold the magnificent, the famous, the lion of the day — and I had it all right in my hand, and I dropped it! Me—William S. Bright — idea man!

IT began, as I suppose all such things do, in the most banal way. Robel had sent for me, to give me my weekly pep talk. George Robel, my boss — Robel's Rib Ticklers, The Famous Firm for Fun, jokes and jests, gags and gadgets for all occasions — a household word. George Robel, a fat and balding Napoleon type, employed four idea men. We knew of each other, but never met. We avoided each other like the plague, scared of plagiarism. And he gave each one of us a going over once a week.

"Ah, Bright!" he said, from behind his desk. "We haven't been very Bright, this week, have we, Bright? We will have to do much better, won't we, otherwise our prospects won't be very Bright, will they?" And so on, with all the variations. I think it was sheer self-defense against the cracks about my name which made me become an expert on ideas in the first place. I'm often asked, "Where do you get your ideas from?" — and I could quote a well-known author on that. "If I knew that," he said, "I'd go back for more!" But you can't talk like that to your employer. So I just let him talk himself dry.

Coming out, I intercepted a knowing sneer from the girl in the outer office.

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"Well, well, Mr. Bright," she cooed nastily. "Been neglecting your homework, again?"

I stopped and leaned on her desk. "When I'm around you, Joyce, honey," I told her, "there's only one kind of homework I can think of!" This was nasty of me, because she was a girl with almost too much of everything — and terribly self-conscious about it.

"Surely," she snapped right back, "you can't mean that? Not me, the girl who's all shape and no brains — remember?"

Which was fair. As I said, having ideas is not enough. Joyce had one hundred per cent perfect eidetic recall. Let her see or hear a thing just once and she had it for always. So her head must have been as full of ideas as her dress was full of her — but she had no idea what to do with them. She didn't have the wit to use her talents, even, until I sold her to Robel as a cheap, efficient and mobile filing cabinet. That was just one of my ideas which had paid off, and for which he was grateful for a whole week. And I had made rude references to her brain-power from time to time since.

"Who cares about what's inside?" I leered, keeping the gag rolling. "With what you've got on the outside, it wouldn't matter if you were hollow—"

And it happened — a beautiful, big, bright idea — just like that! I was all on edge as I turned and staggered back into Robel's office.

"Get out!" he said. "Go back to work. I'm busy!"

"I've go it!" I mumbled dazedly, "Got a cracker of an idea—"

"Stay in!" he said in exactly the same tone. "Sit down. There. Talk!"

"Pinups!" I said, and his bushy eyebrows went up. "Life-size!" I added, and the brows lowered again.

"Been done," he snorted, but I hadn't finished yet.

"Inflatable—plastic—balloons?"

HE took his pudgy hands off the desk and sat quite still. I could see the glow spreading over him.

"By George, Bright, I think you have something there!" he said, and shut his eyes. "Perfectly detailed copies, colored, life-size — and inflatable — fold away in a drawer, pack flat for mail orders — sounds right. Who should we model?"

He was fast, once he started, but I was just ahead of him there.

"Tina Teton," I suggested, "very up and coming, out to make herself a name, but not in the star class yet. Known but not famous, if you get me. She'd be willing and she wouldn't cost too much."

You see what I *mean*? You have to *sell* an idea. I knew that Robel went for the risqué so long as it

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wasn't risky, so I had him from that angle. Robel has a string of items that never get in any catalogues. The grapevine sells them, just as it would sell this. Take, for instance, an item I'll bet you never saw in print, a very fashionable pair of unmentionables, complete with frills and lace — the elastic is guaranteed to hold up for one hour — then body heat does something to the formula, and you get your kicks.

That can be bought, if you know how, and plenty people do, it seems. And they'd be the ones who'd go for this, so I knew Robel would like it. But, for my sins, I also knew him as a hard man with the pennies. Thus Tina Teton.

"All right!" Robel said briskly. "I'll handle this. Just a minute." He flipped his desk buzzer. "Joyce, come in here!"

This was routine. I would recite the gist of my idea to her; she would blink, think, then tell me where and when she'd seen, heard or read of it before; I would hate her intestines, and go away to try again. But not this time.

"It's new to me," she told him. For me, she added, "Trust you to think up a disgusting idea like that."

"You're my inspiration," I told her, and, as another spark lit up, I said, "See here, Mr. Robel — it might be a lot cheaper if you only had to get Tina Teton's name and maybe her head. Joyce, here, could model the body—!"

That repaid me for all the dirty cracks, and a bit over. The next few weeks were hectic. Joyce was livid when she found that she had to be smothered in plaster, and broken out, like a chicken from its shell. She screamed so loud that Robel actually gave her a percentage of the net profit to shut up.

I was highly unpopular around the office, but that was no change.

WITHIN a week after that, we had a thousand units from the first trial run and were standing by for the flood. We sold four. Six weeks later, the number had swelled to nine, and I was in the office again. I guessed what for, and I had insurance — an idea I'd been hoarding just for some such moment. It was a string of cut-plastic jewels with a miniature light inside each one, and a hearing-aid battery built into the clasp. With a bi-metallic "flasher" to make it light up and switch off automatically — a novelty — no girl with any taste would be seen dead with one, but Robel didn't sell to that kind, anyway. It softened his anger a little — but not much.

"A flop," he growled. "You and your life-size balloons. Not so Bright, after all—" He had one standing by his desk as he spoke, and, standing as close as that to

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it, I didn't wonder nobody wanted to buy. It scared me, somehow. With a picture on the wall, you know it's a picture. But this thing was so real you could damn near see it breathe.

I was mumbling something about being sorry, which I wasn't, when one of our peddlers came in, and I was privileged to listen in on the conversation. He made a big thing out of the hard work he'd put in, trying to sell the balloons—and something else.

"One chap," he said, "seemed interested in the process — the idea itself. I think he has the notion that with a change here and there, plus a bit of know-how, he might be able to sell it—"

"Better than we can, eh?"

"I doubt it, Mr. Robel, but he was interested in buying the rights."

"Price?"

"Well, he's only a small man—he suggested five hundred."

"Double — in cash." The telephone came into play, and there was some terse bargaining. In the end, we lost Tina Teton, in effigy, for seven hundred and fifty pounds, and Robel was able to use one of his precious stock of smiles.

"I forgive you, Bright," he said. "Apparently there are others who aren't very bright either!"

One month later, to the day, the blow fell. Braced for my routine dressing-down, because a man can't have new ideas all the time, I entered the office, and Robel practically hit me in the face with a copy of a trade journal.

This not-very-bright "small" man had taken our idea — *my* idea — and given it a golden twist. Using a quick-setting plastic and a spray-on, peel-off technique, he was producing and supplying — by the *thousand* — shop-window dummies! It was so obvious I could have kicked myself. The rag trade was falling over itself to get them — all sizes and colorings and attitudes—lifelike, easy to store, easy to handle, and cheap. You glued a pair of shoes to a heavy base, inserted the feet before inflating, and they stood steady enough to wear clothes. There was even a mention of future developments — a personal-copy service, for do-it-yourself dressmaking. This guy had thought of everything.

Robel was livid in a deadly, cold way.

"You're fired!" he said. "You're an idea man. You should have thought of this and you didn't. You're fired!"

AND that was how I came to be at the bar of the Dog and Pullet on a Friday afternoon—and met Penfold. If there'd been anyone else in the place, I'd never have noticed him. He was that sort of person then. Small, ineffectual, helpless-looking, and a mumbler. I

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bet that's all changed now, but at the time I was in no mood to care.

"Have one on me, friend," I told him. "Whatever it is, have another. Join me in celebrating my emancipation from the yoke of servitude. A slave no longer, Billy Bright now works for Billy Bright!"

"Lost your job?" he asked dully. "Me, too — just been sacked."

"Makes two of us. What did *you* do?"

"Oh, nothing much." He gloomed into his glass. "You might say I had an idea — and my chief liked the sound of it — so I worked on it — and it didn't turn out the way he expected — so he gave me the sack."

"But that's *my* story," I marveled. "Word for word — exactly what fate did to me. That's what it is — Kismet." My intuition was into top gear, straight off. I knew, somehow, that this was fate's repayment for the dirty deal I'd just been handed. I escorted him to a table, sat him down and bade him tell all.

"It's something I've been working on, on my own time, for more than ten years," he mumbled. "About a year ago I began to get some interesting results, so I went to Mr. Ferdinand, my chief, and told him, and he was impressed." He took time out to tell me that he was an electronics technologist, working for Ferdinands, that he spent all his spare time in his back room, fiddling about on a theory.

I was practically foaming at the mouth by the time I interrupted. "What *was* the idea, for heaven's sake?"

"Matter transmission," he said timidly, as if he expected me to throw something at him. I didn't. I was too busy coughing back the part of my drink that had gone down the wrong way.

"Matter transmission?" I choked. "Sending material objects by radio waves?"

"You know about it, then?"

"Man, it's as old as the hills!"

"Oh." He looked quite worried. "I didn't know it had been done."

"Outside the pages of fiction, Arthur," I told him sorrowfully, "it has not, nor ever will be. I don't wonder your boss gave you the heave-ho, if that is what you were trying to sell him. Matter transmission, hah!" I sat there shaking my head and wondering what had gone wrong with the old "feel," that it could let me in for a nut like this.

"But I did it!" he insisted. "That is, I did it — in a sort of a way. Mr. Ferdinand — he was like you, at first — until I showed him some of my results, and figures — and then he was different. 'Penfold,' he said to me, 'I believe you might have something there. You carry on with it — on your own time, of course — but work on it!' So I did. And this morning I went to see

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him with my very latest results—"

"And he shot you out on your ear — for perfecting a method of matter transmission?"

PENFOLD looked sullen. "It wasn't perfect — not to his way of thinking. He expected me to be able to transmit solid objects—"

"Hold it, now," I interrupted again. "That's what I would have expected, too. You mean your gadget won't—"

"Of course not."

"Then what the hell . . . Pardon me. What *does* it transmit?"

"Matter, of course!" he said. "That's all any sane person would expect!" He was beginning to boil now. "Take this glass, for instance. Its shape is the end result of a number of factors — structural stresses, chemical bonds, surface tension — forming a three-dimensional spatial pattern. None of that is electrical, so how can you expect to transmit it?"

"Damned if I know," I confessed. "You're the genuis. What do you send?"

"Molecules, of course," he said witheringly, as if I should have known that for myself. "The applied field breaks down the material form into its elementary molecules — dispersing all the mechanico-chemical components—and then the molecules, which are purely electronic values, are converted into radio-type patterns. These are transmitted, and received, reconverted, in the receiving unit. You see?"

"So," I said, "if you shoved this glass into your gadget, it would come out at the other end as a heap of silica and stuff?"

"That's right." He nodded. "Only I'd have to powder the glass first. My apparatus doesn't develop a field strong enough to break down a structure as rigid as this."

"That's a pity." I put down the glass. "For a moment there, I thought you had maybe the makings of a distintegrator."

"What's a disintegrator?"

"You're strictly a one-idea man, aren't you, Arthur? A disintegrator is something you don't see which makes something you do see into something you don't see. See?" He didn't, of course, and I was wasting my time. "But," I went on to point out, "your gadget is crazier than that. Who'd want to send a pinch of powder anywhere?"

"That was Mr. Ferdinand's complaint," he mumbled sorrowfully. "He was expecting something quite different — and he used the same words. 'Pinch of dust!' he said. 'What's the use of that? I can do better with ordinary television. At least I can send and receive a recognizable picture!' So we got into an argument and he sacked me."

And it happened! Again! A real

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H-bomb of an idea this time — so big that it scared me stiff, and all my brakes went on full.

"Arthur," I said very softly. "Arthur Penfold, I think I've got the solution to your problem, but I want to be absolutely sure before I get your hopes up. Let me ask a few questions. First, do you still have the gadget? I mean, in full working order — and it's all yours — not made of spare parts from the firm, or anything like that?"

HE went a shade of pink that would have alarmed a doctor. "Damn right it's all mine, and in working order! I have it at home, in my back room, just as Mr. Ferdinand saw it! Why?"

"And I can see it with my own eyes?" I asked urgently.

"I don't see why not." He began to catch something of the fever that was burning me. "I say, do you think there's anything important about it? Mr. Ferdinand didn't seem to think very much of it—"

"That's what I'm counting on, Arthur. You see, I think I have the order of events right this time. This is a stupendous idea and somebody else has had first crack at it and slipped up — so it's my turn to come in second and reap the harvest. This time it can't go wrong!"

He looked dubious. "I don't see what's so wonderful about it. An interesting phenomenon, yes — and possible developments, perhaps — but what's *your* bright idea — er, I beg your pardon. No offense, I hope?"

"Think nothing of it." I brushed it to one side. "I'm used to that. The idea? It's big — biggest thing I ever fell into, but this time I'm going to play it carefully. This time I'm digging out the snags *first,* if there are any — and that's all I'm going to say until I've actually seen this thing with my own two eyes."

So we went, by bus, and I saw. His stuff was all scrambled about, crazily, in a stuffy back room that was a death trap of looping wires, naked terminals, milk bottles by the dozen, and several Pisa-like stacks of slices of stale bread. Penfold, with apologies, explained that he used milk bottles as collector units, because they were all of a standard size, and bread as his experimental transmission material because it was cheap, handy and the right kind of texture.

And he showed me. I'm no genius at electronics, but you have to know a smattering in my line, so I could recognize transformers and coils — some really tortuous ones, in vacuum tubes — and a mess of wiring that tangled my eyes just to look at. But the thing that really mattered — the focal point, as it were — was on the end of the bench, and it looked exactly

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like an old-fashioned fishbowl. It *was* a fishbowl, with a copper-wire tripod inside, and some trimmings, connected to the rest of the hook-up.

"Watch!" he said, switching things on here and there. After a few clicks and a hum or two, I saw a bright blue haze spread itself like a little table cloth on the tripod. He took a slice of bread and crumbled it into the bowl, and it fizzed a little, then lay in a thin layer, on the blue haze. And that was that.

"It hasn't gone anywhere," I observed, and he snorted.

"Of course it hasn't. There isn't anywhere for it to go!"

"But in all the stories, it just vanishes — and there it is, presto, in the cabinet thing. Where's your cabinet?"

"Fiction! Look here—" There was quite a transformation in Arthur now. This was his stamping ground and he was thoroughly disgusted with my ignorance. "Let me make this quite clear, Bright. This is not radio, although analogous to it in many ways — frequency and wave-length characteristics, for instance. But in other ways it resembles ordinary, everyday electric current . . ."

HE launched into a highly technical exposition, which didn't do anything for me at all, and it must have showed on my face, because, after a few minutes, he switched off.

"Oh, dear," he sighed. "Look, suppose I took a length of insulated wire, bared one end, and stuck it in that socket there — what would happen?"

"There would be a big blue flash and all the lights would go out?"

"No! Good gracious, don't you know *anything?* Nothing would happen — nothing at all — until I grounded the other end. The juice must have somewhere to go. It's the same with this. The molecular substance cannot go anywhere until I provide it with a ground."

He was talking to me like a child now, which was a laugh, as there was enough of me to make four of him, easy — but I didn't mind. I was watching what he did. He took a dinky little gadget out of a drawer and fitted it on to the top of a milk bottle. It looked like shiny black bakelite, like a collar, and there was a fine wire grid across the hole, and a button on the side.

"Now watch!" he said, and pressed the button. There was a quiet sizzle, and the bottle was about one-third full of a fine white mist. It began to settle. And the bread crumbs had gone from the fish bowl, from one end of the bench to the other, without any visible connection. All of six feet.

It looked all right. But I was cautious.

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"I'd like to see that again," I told him.

Then I was in trouble. I wanted to have the "go" and the "come back" effects properly separated, and to watch them both at the same time. It couldn't be done. In the end, I had to compromise. I put the bread crumbs in by myself, and I held the milk bottle, and switched on the collector by myself — with him by my side all the time — and it still worked.

Still with my brakes on, I asked, "But how do you know it will work with anything else? Have you tried?'

"What did you have in mind?" he asked.

"A piece of coal, for instance."

Well, he looked at me as if I'd lost my mind, but we did it. Chunk of coal in there — black haze of molecular carbon and stuff out here, among the bread powder. I began to ache with the effort to hold back my enthusiasm. This was it, all right. I couldn't find a thing wrong with it. But hold on a bit . . .

"How about liquids?" I demanded, and he was puzzled for a minute.

"Shouldn't make any difference," he decided, and came back with a jug of water.

I came right up on my toes with fright as he sloshed about half a pint into the bowl, all over that power-haze — but nothing happened. It just lay there, in mid-air, quietly.

Before I could get my breath back, he said, "We can try it at a slightly longer range, if you like. I have only a limited power source, but it should carry as far as the next room, at least." And he marched out of his clutter, with me hot-footing after him. Standing in his little bed-sitting room, I thought of that power angle.

"That's a point!" I said. "It uses a hell of a lot of wattage, doesn't it?"

DAMN it, there had to be a snag somewhere — it was too good. But he shook his head gently.

"No. So far as I can detect, there is almost no power drain on the transmission. There is a hefty power investment in setting up the original field, of course, but it is all returned when the field is broken down again. As a matter of fact, that was one of my biggest troubles. I had no way of handling all that return current—"

"Never mind," I told him. "Not now — I can't bear it. Just let me try this last experiment."

I grabbed the bottle from him and pressed the button. Immediately, I had a bottle full of gray-black mud, which filled up and lifted off the collector collar. It fizzed down to the floor, jetting a spurt of fine mist, and I stood there with the filthy stuff drooling down

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over my hands — and I gloated.

He began to go off excitedly about something, and it was quite a while before I realized just what.

"The hell with the carpet, man!" I cried. "What does a carpet matter when you have the world in your lap? Wealth, fame, prestige, power — all shall be yours, Arthur! Just let me handle this and you'll be a hero of science — a Nobel Prize-winner — an immortal!"

But he kept right on about that lousy carpet, and what his landlady would say, and it took me a lot of work to get him to sit down and listen — and to promise, first, that he would let me be the master mind in charge. Then I wrapped it all up in one word and gave it to him:

Rockets!

Now it was his turn to look blank and for me to feel superior, but I hadn't time for that. I had to get it across to him — to sell it.

"Listen, I said. "Preparations are being made for a manned satellite, and then a Moon trip, a trip to Venus, Mars — and who's doing it all? America and Russia. Why? Because rocketry is a super-colossal-expensive business. Why is Britain out of it? Because we can't afford it. Do we want to be in on it? Of course we do. Even Royalty has been heard to express some concern because Britain is lagging behind. Isn't that so?"

He had to nod there, because it was all true, but he was puzzled.

"What does this have to do with rocketry?" he mumbled.

"You know what the biggest headache is in rocketry? It's fuel! A rocket just devours fuel — and it has to lift and carry all its fuel with it, and fuel is weight — and the more fuel you carry, the more weight you carry, and the more fuel you need to lift the weight, until it takes more fuel to lift the weight of fuel than you have fuel to lift the weight. Are you getting the picture now?"

"That part, yes. But what does my—"

"This gadget of yours will end that. No need to design for fuel tanks at all any more — or to allow for the weight of it! You transmit it as required! Can you imagine it? And it's for Britain, boy! This will put us away out in front in the space race. Just wait until the Space Travel Commission hears of this, or the Interplanetary Exploration Board, or the Rocket Experimental Office, or whatever they all it. Just wait — you'll see their eyes light up!"

WELL, we had ourselves a great evening, I can tell you. But the weeks that followed were such as try the soul. Would you believe it, there isn't a Space Travel Commission, or an Interplanetary Exploration Board, or anything like it in this benighted

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country? There isn't even an authorized body for carrying out rocket tests! So far as I could make out, the only people doing anything with rockets are the firework manufacturers. And the civil law—well, I'd rather not dwell on that, if you don't mind. There was only the military left — and who wants to tangle with them in any country?

But that's what it came to in the end. We were out of money, for one thing. I soon ran through my little pile, and Penfold didn't have much — we were both out of a job, remember. So I had to go ask Joyce for a loan. I didn't have much hope of her, but she surprised me. She had managed to hang on to her rights and was taking a sizeable percentage of the window-model business. She wouldn't lend money, though. She bought into Penfold instead. And I thought she was stupid!

And, at last, the day came. We had kept everything as hush-hush as possible, but you can't kill rumors about such things as the verified and signed experimental transmission of five hundred gallons of fuming nitric acid from one end to the other of a carefully watched and guarded air strip somewhere in the West Country.

So we foregathered with a very impressed, and impressive, committee of VIPs — lots of gold braid, oak leaves, eggheads, senior civil servants, and a cabinet minister or two, plus a swarm of experts and consultants — and Penfold and me.

It had been tested and considered and debated ad nauseam, and this was the final formality. The Government was going to buy rights in our very nice baby and nurse it for us. We were made!

We all sat ourselves at a long table, ready to work ourselves tired signing a lot of papers.

An undersecretary of some kind began serving out sheafs of forms to all and sundry. There was a barrage of rustling, coughing, spectacle-case poppings — lips moved and twitched silently — mutterers muttered. Somebody walloped the table with a gavel. We came to order.

Then a beefy, red-faced merchant got up, not far from me, with a funny look on his face.

"My Lord—" he said, then coughed. "I beg your pardon — Mr. Chairman." It was a gaffe, the kind of procedural gaffe you don't hear at a meeting like this, and it had everyone by the ear in a minute. Dead silence. "May I draw attention to page three, second paragraph, of the proposal, wherein there is a definitive description of Mr. Penfold's device?" He hemmed a couple of times, and then read carefully, "—hum—hum—operating by the transmission of molecular energies between two termini in harmonic correspon-

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dence with each others; *i.e.*, matching in frequency and wave length, in a manner analogous with conventional long-wave radio transmission and reception—"

He stopped to clear his throat.

"I would emphasize the term 'long-wave'—"

You could have cut the quiet with a cleaver.

Then he said, "If I may ask — what about the Heaviside Layer?"

It was murder. Because of the Geophysical Year, even I had heard of the Heaviside Layer and Van Allen radiation belts and the like, and I knew that long-wave stuff bounces *off* — it doesn't go through. I got a momentary flash of our rocket bellowing up and going *phut* — out of juice, just beyond the ionosphere — and I wanted to die right there. Lord knows why I had taken it for granted that Penfold's stuff was ultra-short-wave, but I had, and so had everybody else, until redface spotted it.

IT was the end, of course. All over. I believe they shooed us out gently. I'm not too sure. I was too ruined, mentally, to take much notice.

The next clear memory I have is of Penfold and me slumped in a little pub, just the other side of Admiralty Arch, wondering what had hit us. The way Penfold was looking at me, I could see that it was going to happen again. It was going to be all my fault.

But just as he was drawing a big breath, ready to let fly, we were interrupted by a tall, thin guy, with a hairline mustache, slick hair, and the kind of suit you see only in Bond Street ads.

"May I join you?" he asked, and sat, all in one motion. "I was a member of that committee. I'm sorry it all came to nothing. It must have been a severe blow for you chaps."

"A blow?" Penfold sounded as if he might cry any minute. "The blow happened when I first met him! I should never have listened to a word he said. I don't know what I shall do now. I'm out of a job, broke, in debt, disgraced, my professional reputation ruined—"

"I'm sorry," the stranger said. "Perhaps I can help. My name is Parker. I think your idea has possibilities, Mr. Penfold. Of course, it will need a lot of work done on it, and modifications. I think you need a new partner, perhaps, and some financial backing. I would like to buy in."

"Nothing to buy," I told him bitterly. "He says *he's* in debt. That's a laugh. *I'm* the one who's gone into hock for this thing!"

"Very well," he said. "What would it take to cover your debts, plus a little something for your trouble, in return for your share?"

"Well, now—" I thought, fast.

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"Five hundred will get me out of the red—and, say, a thousand for my share?"

Penfold's eyes nearly bugged out of their sockets at this. "A thousand pounds?" he screamed. "You have the cheek to ask this man — a perfect stranger — to give you a thousand pounds for *nothing?*"

But Parker wasn't paying him any attention. He was busy with a very nice-looking cheque book. I had one little quiver of uncertainty as I put out my hand for that pretty slip of paper — but it died, and I took it. And I cashed it.

And that's the last I ever saw of Arthur Penfold. That was three years ago. You know the rest. He belongs to the world now. Everybody has heard of the Penfold-Parker Power Pack.

WHY didn't I think of it? Why didn't I remember that cars, lorries, trucks, motorbikes, buses, trains, diesel engines, aircraft and motorboats — and big liners — all use fuel? You know how it is now. You hire a Power Pack, with a meter on it — you clip it on to the fuel feed of your car or whatever — and you pay what it reads on the meter, the end of the month, into your nearest Penfold-Parker office. There's one in every large town, here and overseas. Pretty soon the only engines with fuel tanks will be those in the museums.

Why didn't I think of it?

Ideas—I've got a million of 'em, as Durante used to say. For instance, if you live all alone, as I do, you'll know what it is to want to heat up a tin of beans. You have to mess about with a pan, waste time heating up the water. There's no need. Just punch a small hole in the top of the tin, stick a bit of cellophane tape over it, and put the tin on a single flame. When the heat and pressure are right, the tape will burst. Pressure-cooker principle, get me?

You don't? You'd rather have a girl like Joyce cook for you? Funny, so did Arthur — he married her.

Now why didn't I think of that?

— **JOHN RACKHAM**

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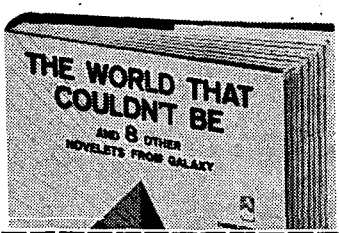

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TAKE a fellow, reasonably young, personable enough, health perfect. Suppose he has all the money he can reasonably, or even unreasonably, use. He is successful in a number of different fields of work in which he is interested. Certainly he has security. Women? Well, maybe not any woman in the world he might want. But still, a very nice, choice selection of a number of the very finest physical specimens. The finest — and no acute case of puritanism to inhibit his enjoyment.

Take all that. Then add to it the positive assurance of continuing youth and vigor, with a solid life expectancy of from 175 to 200 more years. Impossible? Well — just suppose it were all true of someone. A man like that, a man with all those things going for him, you'd figure he would be the happiest man in the world.

Wouldn't you?

Sure. A man with all that would have to be the happiest — unless he was crazy. Right? But me, Johnny Barth, I had it.

I had all of it, just like that. I sure wasn't the happiest man in the world though. And I know I wasn't crazy either. The thing about me was, I wasn't a man. Not exactly.

I was a colony.

Really. A colony. A settlement. A new but flourishing culture, you might say. Oh, I had the look of

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john barth

BY WILLIAM W. STUART

Every man wants to see a Garden of Eden.

John Barth agreed with his whole heart—

he knew that he'd rather see than be one!

Illustrated by DILLON

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a man, and the mind and the nerves and the feel of a man too. All the normal parts and equipment. But all of it existed — and was beautifully kept up, I'll say that — primarily as a locale, not a man.

I was, as I said before, a colony.

Sometimes I used to wonder how New England really felt about the Pilgrims. If you think that sounds silly — perhaps one of these days you won't.

THE beginning was some ten years back, on a hunting trip the autumn after I got out of college. That was just before I started working, as far off the bottom as I could talk myself, which was the personnel office in my Uncle John's dry cleaning chain in the city.

That wasn't too bad. But I was number four man in the office, so it could have been better, too. Uncle John was a bachelor, which meant he had no daughter I could marry. Anyway, she would have been my cousin. But next best, I figured, was to be on good personal terms with the old bull.

This wasn't too hard. Apart from expecting rising young executives to rise and start work no later than 8:30 a.m., Uncle John was more or less all right. Humor him? Well, every fall he liked to go hunting. So when he asked me to go hunting with him up in the Great Sentries, I knew I was getting along pretty well. I went hunting.

The trip was nothing very much. We camped up in the hills. We drank a reasonably good bourbon. We hunted — if that's the word for it. Me, I'd done my hitch in the Army. I know what a gun is — and respect it. Uncle John provided our hunting excitement by turning out to be one of the trigger-happy types. His score was two cows, a goat, a couple of other hunters, one possible deer — and unnumbered shrubs and bushes shot *at*. Luckily he was such a lousy shot that the safest things in the mountains were his targets.

Well, no matter. I tried to stay in the second safest place, which was directly behind him. So it was a nice enough trip with no casualties, right up to the last night.

We were all set to pack out in the morning when it happened. Maybe you read about the thing at the time. It got a light-hearted play in the papers, the way those things do. "A one in a billion accident," they called it.

We were lounging by the campfire after supper and a few good snorts. Uncle John was entertaining himself with a review of some of his nearer, more thrilling misses. I, to tell the truth, was sort of dozing off.

Then, all of a sudden, there was a bright flash of blue-green light and a loud sort of a "zoop-zing" sound. And a sharp, stinging sensation in my thighs.

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I hollered. I jumped to my feet. I looked down, and my pants were peppered with about a dozen little holes like buckshot. I didn't have to drop my pants to know my legs were too. I could feel it. And blood started to ooze.

I figured, of course, that Uncle John had finally shot me and I at once looked on the bright side. I would be a cinch for a fast promotion to vice president. But Uncle John swore he hadn't been near a gun. So we guessed some other hunter must have done it, seen what he had done and then prudently ducked. At least no one stepped forward.

IT was a moonlight night. With Uncle John helping me we made it the two and a half miles back down the trail to Poxville, where we'd left our car and stuff. We routed out the only doctor in the area, old Doc Grandy .

He grumbled, "Hell, boy, a few little hunks o' buckshot like that and you make such a holler. I see a dozen twice's bad as this ever' season. Ought to make you wait till office hours. Well — hike yourself up on the table there. I'll flip 'em out for you."

Which he proceeded to do. If it was a joke to him, it sure wasn't to me, even if they weren't in very deep. Finally he was done. He stood there clucking like an old hen with no family but a brass doorknob. Something didn't seem quite right to him.

Uncle John gave me a good belt of the bourbon he'd been thoughtful enough to pack along.

"What was it you say hit you, boy?" Doc Grandy wanted to know, reaching absently for the bottle.

"Buckshot, I suppose. What was it you just hacked out of me?"

"Hah!" He passed the bottle back to Uncle John. "Not like any buckshot I ever saw. Little balls, or shells of metallic stuff all right. But not lead. Peculiar. M-mph. You know what, boy?"

"You're mighty liberal with the iodine, I know that. What else?"

"You say you saw a big flash of light. Come to think on it, I saw a streak of light up the mountainside about that same time. I was out on the porch. You know, boy, I believe you got something to feel right set up about. I believe you been hit by a meteor. If it weren't — ha-ha — pieces of one of them flying saucers you read about."

Well, I didn't feel so set up about it, then or ever. But it did turn out he was right.

Doc Grandy got a science professor from Eastern State Teachers College there in Poxville to come look. He agreed that they were meteor fragments. The two of them phoned it in to the city papers during a slow week and, all in all, it was a big thing. To them. To

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me it was nothing much but a pain in the rear.

The meteor, interviewed scientists were quoted as saying, must have almost burned up coming through the atmosphere, and disintegrated just before it hit me. Otherwise I'd have been killed. The Poxville professor got very long-winded about the peculiar shape and composition of the pieces, and finally carried off all but one for the college museum. Most likely they're still there. One I kept as a souvenir, which was silly. It wasn't a thing I wanted to remember — or, as I found later, would ever be able to forget. Anyway, I lost it.

All right. That was that and, except for a lingering need to sit on very soft cushions, the end of it. I thought. We went back to town.

Uncle John felt almost as guilty about the whole thing as if he had shot me himself and, in November, when he found about old Bert Winginheimer interviewing girl applicants for checker jobs at home in his apartment, I got a nice promotion.

WORKING my way up, I was a happy, successful businessman.

And then, not all at once but gradually, a lot of little things developed into problems. They weren't really problems either, exactly. They were puzzles. Nothing big but—well, it was like I was sort of being made to do, or not do, certain things. Like being pushed in one direction or another. And not necessarily the direction I personally would have picked. Like—

Well, one thing was shaving.

I always had used an ordinary safety razor — nicked myself not more than average. It seemed OK to me. Never cared too much for electric razors; it didn't seem to me they shaved as close. But — I took to using an electric razor now, because I had to.

One workday morning I dragged myself to the bathroom of my bachelor apartment to wash and shave. Getting started in the morning was never a pleasure to me. But this time seemed somehow tougher than usual. I lathered my face and put a fresh blade in my old razor.

For some reason, I could barely force myself to start. "Come on, Johnny boy!" I told myself. "Let's go!" I made myself take a first stroke with the razor. Man! It burned like fire. I started another stroke and the burning came before the razor even touched my face. I had to give up. I went down to the office without a shave.

That was no good, of course, so at the coffee break I forced myself around the corner to the barber shop. Same thing! I got all lathered up all right, holding myself by force in the chair. But, before the barber could touch the razor to my face, the burning started again.

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I stopped him. I couldn't take it.

And then suddenly the idea came to me that an electric razor would be the solution. It wasn't, actually, just an idea; it was positive knowledge. Somehow I knew an electric razor would do it. I picked one up at the drug store around the corner and took it to the office. Plugged the thing in and went to work. It was fine, as I had known it would be. As close a shave? Well, no. But at least it was a shave.

Another thing was my approach to — or retreat from — drinking. Not that I ever was a real rummy, but I hadn't been one to drag my feet at a party. Now I got so moderate it hardly seemed worth bothering with at all. I could only take three or four drinks, and that only about once a week. The first time I had that feeling I should quit after four, I tried just one — or two — more. At the first sip of number five, I thought the top of my head would blast off. Four was the limit. Rigidly enforced.

All that winter, things like that kept coming up. I couldn't drink more than so much coffee. Had to take it easy on smoking. Gave up ice skating — all of a sudden the cold bothered me. Stay up late nights and chase around? No more; I could hardly hold my eyes open after ten.

That's the way it went.

I had these feelings, compulsions actually. I couldn't control them. I couldn't go against them. If I did, I would suffer for it.

True, I had to admit that probably all these things were really good for me. But it got to where everything I did was something that was good for me — and that was bad. Hell, it isn't natural for a young fellow just out of college to live like a fussy old man of seventy with a grudge against the undertaker. Life became very dull!

About the only thing I could say for it was, I was sure healthy.

It was the first winter since I could remember that I never caught a cold. A cold? I never once sniffled. My health was perfect; never even so much as a pimple. My dandruff and athlete's foot disappeared. I had a wonderful appetite — which was lucky, since I didn't have much other recreation left. And I didn't even gain weight!

Well, those things were nice enough, true. But were they compensation for the life I was being forced to live? Answer: Uh-uh. I couldn't imagine what was wrong with me.

Of course, as it turned out the following spring, I didn't have to imagine it. I was told.

II

IT was a Friday. After work I stopped by Perry's Place with Fred Schingle and Burk Walters

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from the main accounting office. I was hoping it would turn out to be one of my nights to have a couple—but no. I got the message and sat there, more or less sulking, in my half of the booth.

Fred and Burk got to arguing about flying saucers. Fred said yes; Burk, no. I stirred my coffee and sat in a neutral corner.

"Now look here," said Burk, "you say people have seen things. All right. Maybe some of them have seen things — weather balloons, shadows, meteors maybe. But space ships? Nonsense."

"No nonsense at all. I've seen pictures. And some of the reports are from airline pilots and people like that, who are not fooled by balloons or meteors. They have seen ships, I tell you, ships from outer space. And they are observing us."

"Drivel!"

"It is not!"

"It's drivel. Now look, Fred. You too, Johnny, if you're awake over there. How long have they been reporting these things? For years. Ever since World War II.

"All right. Ever since the war, at least. So. Suppose they were space ships? Whoever was in them must be way ahead of us technically. So why don't they land? Why don't they approach us?"

Fred shrugged. "How would I know? They probably have their reasons. Maybe they figure we aren't worth any closer contact."

"Hah! Nonsense. The reason we don't see these space people, Fred my boy, admit it, is because there aren't any. And you know it!"

"I don't know anything of the damned sort. For all any of us know, they might even be all around us right now."

Burk laughed. I smiled, a little sourly, and drained my coffee.

I felt a little warning twinge.

Too much coffee; should have taken milk. I excused myself as the other two ordered up another round.

I left. The conversation was too stupid to listen to. Space creatures all around me, of all things. How wrong can a man get? There weren't any invaders from space all around me.

I was all around them.

ALL at once, standing there on the sidewalk outside Perry's Bar, I knew that it was true. Space invaders. The Earth was invaded—the Earth, hell! *I* was invaded. I didn't know how I knew, but I knew all right. I should have. I was in possession of all the information.

I took a cab home to my apartment.

I was upset. I had a right to be upset and I wanted to be alone. Alone? That was a joke!

Well, my cab pulled up in front of my very modest place. I paid the driver, overtipped him — I was

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really upset — and ran up the stairs. In the apartment, I hustled to the two by four kitchen and, with unshakable determination, I poured myself a four-finger snort of scotch.

Then I groaned and poured it down the sink. Unshakable determination is all very well—but when the top of your head seems to rip loose like a piece of stubborn adhesive coming off a hairy chest and bounces, hard, against the ceiling, then all you can do is give up. I stumbled out to the front room and slumped down in my easy chair to think.

I'd left the door open and I was sitting in a draft.

So I had to — that compulsion — go close the door. *Then* I sat down to think.

Anyway I *thought* I sat down to think. But, suddenly, my thoughts were not my own.

I wasn't producing them; I was receiving them.

"Barth! Oh, Land of Barth. Do you read us, oh Barthland? Do you read us?"

I didn't hear that, you understand. It wasn't a voice. It was all thoughts inside my head. But to me they came in terms of words.

I took it calmly. Surprisingly, I was no longer upset — which, as I think it over, was probably more an achievement of internal engineering than personal stability.

"Yeah," I said, "I read you. So who in hell—" a poor choice of expression — "are you? What are you doing here? Answer me that." I didn't have to say it, the thought would have been enough. I knew that. But it made me feel better to speak out.

"We are Barthians, of course. We are your people. We live here."

"Well, you're trespassing on private property! Get out, you hear me? Get out!"

"Now, now, noble Fatherland. Please, do not become upset and unreasonable. We honor you greatly as our home and country. Surely we who were born and raised here have our rights. True, our forefathers who made the great voyage through space settled first here in a frightful wilderness some four generations back. But we are neither pioneers nor immigrants. We are citizens born."

"Invaders! Squatters!"

"Citizens of Barthland."

"Invaded! Good Lord, of all the people in the world, why me? Nothing like this ever happened to anyone. Why did I have to be picked to be a territory — the first man to have queer things living in me?"

"Oh, please, gracious Fatherland! Permit us to correct you. In the day of our fathers, conditions were, we can assure you, chaotic. Many horrible things lived here. Wild beasts and plant growths of the most vicious types were everywhere."

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"There were—?"

"What you would call microbes. Bacteria. Fungi. Viruses. Terrible devouring wild creatures everywhere. You were a howling wilderness. Of course, we have cleaned those things up now. Today you are civilized—a fine, healthy individual of your species — and our revered Fatherland. Surely you have noted the vast improvement in your condition!"

"Yes, but—"

"And we pledge our lives to you, oh Barthland. As patriotic citizens we will defend you to the death. We promise you will never be successfully invaded."

Yeah. Well, that was nice. But already I felt as crowded as a subway train with the power cut out at rush hour.

But there was no room for doubt either. I'd had it. I still did have it; had no chance at all of getting rid of it.

THEY went on then and told me their story.

I won't try to repeat it all verbatim. I couldn't now, since my memory — but that's something else. Anyway, I finally got the picture.

But I didn't get it all the same evening. Oh, no. At ten I had to knock it off to go to bed, get my sleep, keep up my health. They were insistent.

As they put it, even if I didn't care for myself I had to think about an entire population and generations yet unborn. Or unbudded, which was the way they did it.

Well, as they said, we had the whole weekend to work out an understanding. Which we did. When we were through, I didn't like it a whole lot better, but at least I could understand it.

It was all a perfectly logical proposition from their point of view — which differed in quite a number of respects from my own. To them it was simply a matter of survival for their race and their culture. To me it was a matter of who or what I was going to be. But then, I had no choice.

According to the Official History I was given, they came from a tiny planet of a small sun. Actually, their sun was itself a planet, still incandescent, distant perhaps like Jupiter from the true sun. Their planet or moon was tiny, wet and warm. And the temperature was constant.

These conditions, naturally, governed their development — and, eventually, mine.

Of course they were very small, about the size of a dysentery amoeba. The individual life span was short as compared to ours but the accelerated pace of their lives balanced it out. In the beginning, something like four of our days was a lifetime. So they lived, grew, developed, evolved. They learned to

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communicate. They became civilized — far more so than we have, according to them. And I guess that was true. They were even able to extend their life span to something like two months.

"And to what," I inquired — but without much fire, I'm afraid; I was losing fight — "to what am I indebted for this intrusion?"

"Necessity."

It was, to them. Their sun had begun to cool. It was their eviction notice.

They had to move or adapt themselves to immeasurably harsher conditions; and they had become so highly developed, so specialized, that change of that sort would have been difficult if not impossible. And they didn't want to change, anyway. They liked themselves as they were.

The only other thing was to escape. They had to work for flight through space. And they succeeded.

There were planets nearer to them than Earth. But these were enormous worlds to them, and the conditions were intolerably harsh. They found one planet with conditions much like those on Earth a few million years back. It was a jungle world, dominated by giant reptiles — which were of no use to the folk. But there were a few, small, struggling, warm-blooded animals. Small to us, that is — they were county size to the folk.

Some genius had a great inspiration. While the environment of the planet itself was impossibly harsh and hostile, the conditions *inside* these warm little animals were highly suitable!

It seemed to be the solution to their problem of survival. Small, trial colonies were established. Communication with the space ships from home was achieved.

The experiment was a success.

THE trouble was that each colony's existence depended on the life of the host. When the animal died, the colony died.

Life on the planet was savage. New colonies would, of course, be passed from individual to individual and generation to generation of the host species. But the inevitable toll of attrition from the violent deaths of the animals appalled this gentle race. And there was nothing they could do about it. They could give protection against disease, but they could not control the hosts. Their scientists figured that, if they could find a form of life having conscious power of reason, they would be able to establish communication and a measure of control. But it was not possible where only instinct existed.

They went ahead because they had no choice. Their only chance was to establish their colonies, accepting the certainty of the slaughter of hundreds upon hundreds of entire communities — and hoping

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that, with their help, evolution on the planet would eventually produce a better host organism. Even of this they were by no means sure. It was a hope. For all they could know, the struggling mammalian life might well be doomed to extermination by the giant reptiles.

They took the gamble. Hundreds of colonies were planted.

They did it but they weren't satisfied with it. So, back on the dying home moon, survivors continued to work. Before the end came they made one more desperate bid for race survival.

They built interstellar ships to be launched on possibly endless journeys into space. A nucleus of select individuals in a spore-like form of suspended animation was placed on each ship. Ships were launched in pairs, with automatic controls to be activated when they entered into the radius of attraction of a sun. Should the sun have planets such as their own home world — or Earth type — the ships would be guided there. In the case of an Earth type planet having intelligent life, they would —

They would do just what my damned "meteor" had done.

They would home in on an individual, "explode," penetrate — and set up heavy housekeeping on a permanent basis. They did. Lovely. Oh, joy!

Well. We would all like to see the Garden of Eden; but being it is something quite else again.

Me, a colony!

My — uh — population had no idea where they were in relation to their original home, or how long they had traveled through space. They did hope that someplace on Earth their companion ship had established another settlement. But they didn't know. So far on our world, with its masses of powerful electrical impulses, plus those of our own brains, they had found distance communication impossible.

"Well, look, fellows," I said. "Look here now. This is a noble, inspiring story. The heroic struggle of your — uh — people to survive, overcoming all odds and stuff, it's wonderful! And I admire you for it, indeed I do. But — what about me?"

"You, Great Land of Barth, are our beloved home and fatherland for many, many generations to come. You are the mighty base from which we can spread over this enormous planet."

"That's you. What I mean is, what about *me?*"

"Oh? But there is no conflict. Your interests are our interests."

That was how they looked at it. Sincerely. As they said, they weren't ruthless conquerors. They only wanted to get along.

AND all they wanted for me were such fine things as good health, long life, contentment. Con-

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tentment, sure. Continued irritation — a sour disposition resulting in excess flow of bile — did not provide just the sort of environment in which they cared to bring up the kiddies. Smoking? No. It wasn't healthy. Alcohol? Well, they were willing to declare a national holiday now and then. Within reason.

Which, as I already knew, meant two to four shots once or twice a week.

SEX? Themselves, they didn't have any. "But," they told me with an attitude of broad tolerance, "we want to be fair. We will not interfere with you in this matter—other than to assist you in the use of sound judgment in the selection of a partner."

But I shouldn't feel that any of this was in any way real restrictive. It was merely practical common sense.

For observing it I would get their valuable advice and assistance in all phases of my life. I would enjoy — or have, anyway — perfect health. My life, if that's what it was, would be extended by better than 100 years. "You are fortunate," they pointed out, a little smugly I thought, "that we, unlike your race, are conservationists in the truest sense. Far from despoiling our homeland and laying waste its resources and natural scenic wonders, we will improve it."

I had to be careful because, as they explained it, even a small nick with a razor might wipe out an entire suburban family.

"But fellows! I want to live my own life."

"Come now. Please remember that you are not alone now."

"Aw, fellows. Look, I'll get a dog, lots of dogs — fine purebreds, not mongrels like me. The finest. I'll pamper them. They'll live like kings . . . Wouldn't you consider moving?"

"Out of the question.

"An elephant then? Think of the space, the room for the kids to play—"

"Never."

"Damn it! Take me to—no, I mean let me talk to your leader."

That got me no place. It seemed I was already talking to their highest government councils. All of my suggestions were considered, debated, voted on — and rejected.

They were democratic, they said. They counted my vote in favor; but that was just one vote. Rather a small minority.

As I suppose I should have figured, my thoughts were coming through over a period that was, to them, equal to weeks. They recorded them, accelerated them, broadcast them all around, held elections and recorded replies to be played back to me at my own slow tempo by the time I had a new thought ready. No, they

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wouldn't take time to let me count the votes. And there is where you might say I lost my self control.

"Damn it!" I said. Or shouted. "I won't have it! I won't put up with it. I'll — uh — I'll get us all dead drunk. I'll take dope! I'll go out and get a shot of penicillin and—"

I didn't do a damned thing. I couldn't.

Their control of my actions was just as complete as they wanted to make it. While they didn't exercise it all the time, they made the rules. According to them, they could have controlled my thoughts too if they had wanted to. They didn't because they felt that wouldn't be democratic. Actually, I suppose they were pretty fair and reasonable — from their point of view. Certainly it could have been a lot worse.

III

I WASN'T as bad off as old Faust and his deal with the devil. My soul was still my own. But my body was community property — and I couldn't, by God, so much as bite my own tongue without feeling like a bloody murderer — and being made to suffer for it, too.

Perhaps you don't think biting your tongue is any great privilege to have to give up. Maybe not. But, no matter how you figure, you've got to admit the situation was — well — confining.

And it lasted for over nine years.

Nine miserable years of semi-slavery? Well, no. I couldn't honestly say that it was that bad. There were all the restrictions and limitations, but also there was my perfect health; and what you might call a sort of a sense of inner well-being. Added to that, there was my sensationally successful career. And the money.

All at once, almost anything I undertook to do was sensationally successful. I wrote, in several different styles and fields and under a number of different names; I was terrific. My painting was the talk of the art world. "Superb," said the critics. "An astonishing otherworldly quality." How right they were — even if they didn't know why. I patented a few little inventions, just for fun; and I invested. The money poured in so fast I couldn't count it. I hired people to count it, and to help guide it through the tax loopholes — although there I was able to give them a few sneaky little ideas that even our sharpest tax lawyers hadn't worked out.

Of course the catch in all that was that, actually, I was not so much a rich, brilliant, successful man. I was a booming, prosperous nation.

The satisfaction I could take in all my success was limited by my knowledge that it was a group effort. How could I help being suc-

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cessful? I had a very fair part of the resources of a society substantially ahead of our own working for me. As for knowledge of our world, they didn't just know everything I did. They knew everything I ever had known — or seen, heard, read, dreamed or thought of. They could dig up anything, explore it, expand it and use it in ways I couldn't have worked out in a thousand years. Sure, I was successful. I did stay out of sports — too dangerous; entertainment — didn't lend itself too well to the group approach; and music — they had never developed or used sound, and we agreed not to go into it. As I figured it, music in the soul may be very beautiful; but a full-size symphony in a sinus I could do without.

So I had success. And there was another thing I had too. Company.

Privacy? No, I had less privacy than any man who ever lived, although I admit that my people, as long as I obeyed the rules, were never pushy or intrusive. They didn't come barging into my thoughts unless I invited them. But they were always ready. And if those nine years were less than perfect, at least I was never lonesome. Success, with me, was not a lonely thing.

And there were women.

Yes, there were women. And finally, at the end of it, there was *a* woman — and that was it.

AS they had explained it, they were prepared to be tolerant about my — ah — relations with women as long as I was "reasonable" in my selection. Come to find out, they were prepared to be not just tolerant but insistent — and very selective.

First there was Helga.

Helga was Uncle John's secretary, a great big, healthy, rosy-cheeked, blonde Swedish girl, terrific if you liked the type. Me, I hadn't ever made a move in her direction, partly because she was so close to Uncle John, but mostly because my tastes always ran to the smaller types. But tastes can be changed.

Ten days after that first conversation with my people I'd already cleared something like $50,000 in a few speculations in the commodity market. I was feeling a little moody in spite of it, and I decided to quit my job. So I went up that afternoon to Uncle John's office to tell him.

Uncle John was out. Helga was in. There she was, five foot eleven of big, bouncy, blonde smorgasbord. Wow! Before, I'd seen Helga a hundred times, looked with mild admiration but not one real ripple inside. And now, all at once, wow! That was my people, of course, manipulating glands, thoughts, feelings. "Wow!" it was.

First things first. "Helga, Doll! Ah! Where's Uncle John?"

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"Johnny! That's the first time you ever called me — hm-m — Mr. Barth has gone for the day . . . Johnny."

She hadn't even looked at me before. My — uh — government was growing more powerful. It was establishing outside spheres of influence. Of course, at the time, I didn't take the trouble to analyze the situation; I just went to work on it.

As they say, it is nice work if you can get it.

I could get it.

It was a good thing Uncle John didn't come bustling back after something he'd forgotten that afternoon.

I didn't get around to quitting my job that afternoon. Later on that evening, I took her home. She wanted me to come in and meet her parents, yet! But I begged off that — and then she came up with a snapper. "But we will be married, Johnny darling. Won't we? Real soon!"

"Uh," I said, making a quick mental plane reservation for Rio, "sure, Doll. Sure we will." I broke away right quick after that. There was a problem I wanted to get a little advice on.

What I did get, actually, was a nasty shock.

Back in my apartment — my big, new, plush apartment — I sat down to go over the thing with the Department of the Interior. The enthusiastic response I got surprised me. "Magnificent," was the word. "Superb. Great!"

Well, I thought myself that I had turned in a pretty outstanding performance, but I hadn't expected such applause. "It is a first step, a splendid beginning! A fully equipped, well-armed expedition will have the place settled, under cultivation and reasonably civilized inside of a day or two, your time. It will be simple for them. So much more so than in your case — since we now know precisely what to expect."

I was truly shocked. I felt guilty. "No!" I said. "Oh, no! What a thing to do. You *can't*!"

"Now, now. Gently," they said. "What, after all, oh Fatherland, might be the perfectly natural consequences of your own act?"

"What? You mean under other —that is—"

"Exactly. You could very well have implanted a new life in her, which is all that we have done. Why should our doing so disturb you?"

Well, it did disturb me. But then, as they pointed out, they could have developed less pleasant methods of spreading colonies. They had merely decided that this approach would be the surest and simplest.

"Well, maybe," I told them, "but it still seems kind of sneaky to me.

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Besides, if you'd left it to me, I'd certainly never have picked a great big ox like Helga. And now she says she's going to marry me, too!"

"You do not wish this? We understand. Do not be concerned. We will — ah — send instructions to our people the next time. She will change her feelings about this."

She dropped the marriage bit completely.

We had what you might call an idyllic association, in spite of her being such a big, husky model — a fact which never bothered me when I was with her. "She is happy," I was assured, "very happy." She seemed pleased and contented enough, even if she developed, I thought, a sort of an inward look about her. She and I never discussed our — uh — people. We had a fast whirl for a couple of weeks. And then I'd quit my job with Uncle John, and we sort of drifted apart.

Next thing I heard of her, she married Uncle John.

Well. I have my doubts about how faithful a wife she was to him, but certainly she seemed to make him happy. And my government assured me Uncle John was not colonized. "Too late," they said. "He is too old to be worth the risk of settling." But they respected my scruples about my uncle's wife and direct communication with Helgaland was broken off.

But there were others.

IV

FOR the next nine years—things came easy for me. I suppose the restrictions, the lack of freedom should have made me a lot more dissatisfied than I was. I know, though they didn't say so, that my people did a little manipulating of my moods by jiggering the glands and hormones or something. It must have been that with the women.

I know that after Helga I felt guilty about the whole thing. I wouldn't do it again. But then one afternoon I was painting that big amazon of a model and — Wow!

I couldn't help it. So, actually, I don't feel I should be blamed too much if, after the first couple of times, I quit trying to desert, so to speak.

And time went by, although you wouldn't have guessed it to look at me. I didn't age. My health was perfect. Well, there were a couple of very light headaches and a touch of fever, but that was only politics.

There were a couple of pretty tight elections which, of course, I followed fairly closely. After all, I had my vote, along with everyone else and I didn't want to waste it — even though, really, the political parties were pretty much the same and the elections were more questions of personality than anything else.

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Then one afternoon I went to my broker's office to shift around a few investments according to plans worked out the night before. I gave my instructions. Old man Henry Schnable checked over the notes he had made.

"Now that's a funny thing," he said.

"You think I'm making a mistake?"

"Oh, no. You never have yet, so I don't suppose you are now. The funny thing is that your moves here are almost exactly the same as those another very unusual customer of mine gave me over the phone not an hour ago."

"Oh?" There was nothing very interesting about that. But, oddly enough, I was very interested.

"Yes. Miss Julia Reede. Only a child really, 21, but a brilliant girl. Possibly a genius. She comes from some little town up in the mountains. She has been in town here for just the past six months and her investments — well! Now I come to think about it, I believe they have very closely paralleled yours all along the line. Fabulously successful. You advising her?"

"Never heard of the girl."

"Well, you really should meet her, Mr. Barth. You two have so much in common, and such lovely investments. Why don't you wait around? Miss Reede is coming in to sign some papers this afternoon. You two should know each other."

HE was right. We *should* know each other. I could feel it.

"Well, Henry," I said, "perhaps I will wait. I've got nothing else to do this afternoon."

That was a lie. I had plenty of things to do, including a date with the captain of a visiting women's track team from Finland. Strangely, my people and I were in full agreement on standing up the chesty Finn, let the javelins fall where they may.

Henry was surprised too. "You are going to wait for her? Uh. Well now, Mr. Barth, your reputation — ah — that is, she's only a child, you know, from the country."

The buzzer on his desk sounded. His secretary spoke up on the intercom. "Miss Reede is here."

Miss Reede came right on in the door without waiting for a further invitation.

We stood there gaping at each other. She was small, about 5'2" maybe, with short, black, curly hair, surface-cool green eyes with fire underneath, fresh, freckled nose, slim figure. Boyish? No. Not boyish.

I stared, taking in every little detail. Every little detail was perfect and — well, I can't begin to describe it. That was for me. I could feel it all through me, she was what I had been waiting for, dreaming of.

I made a quick call on the inside switchboard, determined to fight to

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override the veto I was sure was coming. I called.

No answer.

For the first time, I got no regular answer. Of course, by now I always had a kind of a sense or feeling of what was going on. This time there was a feeling of a celebration, rejoicing, everybody on a holiday. Which was exactly the way I felt as I looked at the girl. No objections? Then why ask questions?

"Julia," old Henry Schnable was saying, "this is Mr. John Barth. John, this is – John! John, remember—"

I had reached out and taken the girl's hand. I tucked her arm in mine and she looked up at me with the light, the fire in the green depths swimming toward the surface. I didn't know what she saw in me – neither of us knew then – but the light was there, glowing. We walked together out of Henry Schnable's office.

"John! Julia, your papers! You have to sign—"

Business? We had business elsewhere, she and I.

"Where?" I asked her in the elevator. It was the first word either of us had spoken.

"My apartment," she said in a voice like a husky torch song. "It's close. The girl who rooms with me is spending the week back home with her folks. The show she was in closed. We can be alone."

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We could. Five minutes in a cab and we were.

I never experienced anything remotely like it in all my life. I never will again.

AND then there was the time afterwards, and then we knew.

It was late afternoon, turning to dusk. She lifted up on one elbow and half turned away from me to switch on the bedside lamp. The light came on and I looked down at her, lovingly, admiringly. Idly, I started to ask her, "How did you get those little scars on your leg there and . . . those little scars? Like buckshot! Julia! Once, along about ten years ago — you must have been a little girl then — in the mountains — sure. You were hit by a meteor, weren't you??"

She turned and stared at me. I pointed at my own little pockmark scars.

"A meteor — about ten years ago!"

"Oh!"

"I knew it. You were."

" 'Some damn fool, crazy hunter,' was what Pop said. He thought it really was buckshot. So did I, at first. We all did. Of course about six months later I found out what it was but we — my little people and I — agreed there was no sense in my telling anyone. But you know."

It was the other ship. There were two in this sector, each con-

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trolled to colonize a person. My own group always hoped and believed the other ship might have landed safely. And now they knew.

We lay there, she and I, and we both checked internal communications. They were confused, not clear and precise as usual. It was a holiday in full swing. The glorious reunion! No one was working. No one was willing to put in a lot of time at the communications center talking to Julia and me. They were too busy talking to each other. I was right. The other ship.

Of course, since the other ship's landfall had been a little girl then, the early movements of the group had been restricted. Expansion was delayed. She grew up. She came to the city. Then — well, I didn't have to think about that.

We looked at each other, Julia and I. A doll she was in the first place and a doll she still was. And then on top of that was the feeling of community, of closeness coming from our people. There was a sympathy. The two of us were in the same fix. And it may be that there was a certain sense of jealousy and resentment too — like the feeling, say, between North and South America. How did we feel?

"I feel like a drink."

We said it together and laughed. Then we got up and got the drinks. I was glad to find that Julia's absent roomate, an actress, had a pretty fair bar stock.

WE had a drink. We had another. And a third.

Maybe nobody at all was manning the inner duty stations. Or maybe they were visiting back and forth, both populations in a holiday mood. They figured this was a once in a millenium celebration and, for once, the limits were off. Even alcohol was welcome. That's a line of thought that kills plenty of people every day out on the highway.

We had a couple more in a reckless toast. I kissed Julia. She kissed me. Then we had some more drinks.

Naturally it hit us hard; we weren't used to it. But still we didn't stop drinking. The limits were off for the first time. Probably it would never happen again. This was our chance of a lifetime and there was a sort of desperation in it. We kept on drinking.

"Woosh," I said, finally, "wow. Let's have one more, wha' say? One more them — an' one more those."

She giggled. "Aroun' an aroun', whoop, whoop! Dizzy. Woozy. Oughta have cup coffee."

"Naw. Not coffee. Gonna have hangover. Take pill. Apsirin."

"Can-*not!* Can-*not* take pill. Won' lemme. 'Gains talla rules."

"Can."

"Can-*not*."

"Can. No rules. Rule soff. Can. Apsirin. C'mon."

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Clinging to each other, we stumbled to the bathroom. Pills? The roommate must have been a real hypochondriac. She had rows and batteries of pills. I knocked a bottle off the cabinet shelf. Aspirin? Sure, fancy aspirin. Blue, special. I took a couple.

"Apsirin. See? Easy."

Her mouth made a little, red, round "O" of wonder. She took a couple.

"Gosh! Firs' time I c'd ever take a pill."

"Good. Have 'nother?"

It was crazy, sure. The two of us were drunk. But it was more than that. We were like a couple of wild, irresponsible kids, out of control and running wild through the pill boxes. We reeled around the bathroom, sampling pills and laughing.

"Here's nice bottla red ones."

There was a nice bottle of red ones. I fumbled the top off the bottle and spilled the bright red pills bouncing across the white tile bathroom floor. We dropped to our knees after them, after the red pills, the red dots, the red, fiery moons, spinning suddenly, whirling, twirling, racing across the white floor. And then it got dark. Dark, and darker and even the red, red moons faded away.

Some eons later, light began to come back and the red moons, dim now and pallid, whirled languidly across a white ceiling.

SOMEONE said, "He's coming out of it, I think."

"Oh," I said. "Ugh!"

I didn't feel good. I'd almost forgotten what it was like, but I was sick. Awful. I didn't particularly want to look around but I did, eyes moving rustily in their sockets. There was a nurse and a doctor. They were standing by my bed in what was certainly a hospital.

"Don't ask," said the doctor. I wasn't going to. I didn't even care where I was, but he told me anyway, "You are in the South Side Hospital, Mr. Barth. You will be all right — which is a wonder, considering. Remarkable stamina! Please tell me, Mr. Barth, what kind of lunatic suicide pact was that?"

"Suicide pact?"

"Yes, Mr. Barth. Why couldn't you have settled for just one simple poison, hm-m? The lab has been swearing at you all day."

"Uh?"

"Yes. At what we pumped from your stomach. And found in the girl's. Liquor, lots of that — but then, why aspirin? Barbiturates we expect. Roach pellets are not unusual. But aureomycin? Tranquilizers? Bufferin? Vitamin B complex, vitamin C — and, finally, half a dozen highly questionable contraceptive pills? Good Lord, man!"

"It was an accident. The girl — Julia — ?"

"You are lucky. She wasn't."

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"Dead?"

"Yes, Mr. Barth. She is dead."

"Doctor, listen to me! It was an accident, I swear. We didn't know what we were doing. We were, well, celebrating."

"In the medicine cabinet, Mr. Barth? Queer place to be celebrating! Well, Mr. Barth, you must rest now. You have been through a lot. It was a near thing. The police will be in to see you later."

With this kindly word the doctor and his silently disapproving nurse filed out of the room.

The police? Julia, poor Julia — dead.

Now what? What should I do? I turned, as always, inward for advice and instructions. "Folks! Why didn't you stop me? Why did you let me do it? And now — what shall I do? Answer me, I say. Answer!"

There was only an emptiness. It was a hollow, aching sensation. It seemed to me I could hear my questions echoing inside me with a lonely sound.

I was alone. For the first time in nearly ten years, I was truly alone, with no one to turn to.

They were gone! At last, after all these years, they were gone. I was free again, truly free. It was glorious to be free — wasn't it?

The sheer joy of the thing brought a tightness to my throat, and I sniffled. I sniffled again. My nose was stuffy. The tightness in my throat grew tighter and became a pain.

I sneezed.

Was this joy — or a cold coming on? I shifted uneasily on the hospital bed and scratched at an itch on my left hip. Ouch! It was a pimple. My head ached. My throat hurt. I itched. Julia was dead. The police were coming. I was alone. What should I do?

"Nurse!" I shouted at the top of my voice. "Nurse, come here. I want to send a wire. Rush. Urgent. To my aunt, Mrs. Helga Barth, the address is in my wallet. Say, 'Helga. Am desperately ill, repeat, ill. Please come at once. I must have help — from you.'"

She'll come. I know she will. They've *got* to let her. It was an accident, I swear, and I'm not too old. I'm still in wonderful shape, beautifully kept up.

But I feel awful.

Well — how do you suppose New England would feel today, if suddenly all of its inhabitants died?

— **WILLIAM W. STUART**

★ ★ ★ ★ ★

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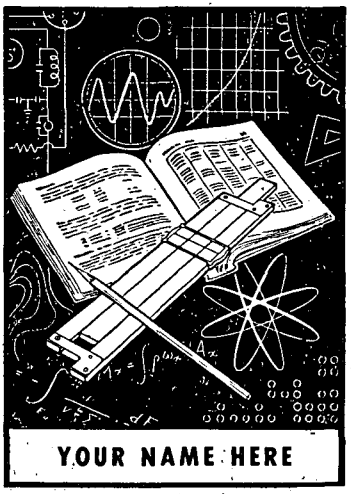

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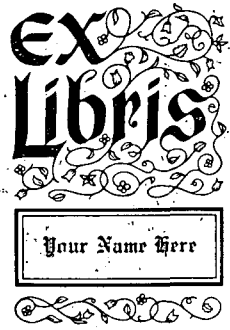

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